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# FDI and Economic Growth in Nigeria: An Analysis of the Role of Financial Development on Linkages

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A thesis submitted in partial fulfilment of the requirements of the Manchester Metropolitan University for the degree of Doctor of Philosophy

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## Abstract

*Foreign direct investment (FDI) has become a key driver of economic growth and development especially in developing countries. However, the level of FDI attracted by Nigeria is unexceptional when compared with other developing middle and high-income countries. In addition, while FDI can convey greater knowledge spillovers (such as new technology, new processes, managerial skills, productivity gains, etc), the country's capacity to take advantage of these externalities might be limited by local conditions.*

*This thesis has examined the linkage between FDI and economic growth in Nigeria as well as the role of financial development in enhancing the benefits of FDI flows to Nigeria, which is a novel contribution to the literature. It also considered the impact of other determinants of growth in Nigeria's economic development process. Data on FDI, financial development, growth indicators and other relevant controls were obtained from various sources and covered the period between 1970-2014. The study uses a mix of methodologies (cointegration, Granger causality and OLS techniques).*

*Empirical results from the Engle and Granger two step error correction model (ECM) show that no long run relationship exists between economic growth and FDI in either directions. However, the Granger causality test show that a bi-directional short run dynamic relationship exists between real FDI and economic growth. Thus, the relationship between growth and FDI is reinforcing and endogenous in the short run. Results from the OLS regression show that FDI is negatively and significantly related to economic growth even after controlling for the effect of capital account liberalisation. The interaction between FDI and banking development variables were not statistically significant, while the interaction between FDI and stock market development variables were statistically significant. This implies that only stock market development variables shape the relationship between FDI and growth in Nigeria. However, the interaction of FDI and stock market capitalisation positively and significantly explains growth, while the interaction of FDI and stock market liquidity has a negative and significant association with growth. This implies that the growth benefits or spillover effects of FDI inflows in Nigeria are enhanced by the size of the stock market rather than market liquidity. The Granger causality tests also show that market-based indicators of financial development (market capitalisation, value traded and market turnover) are more associated with FDI inflows and economic growth than bank-based indicators. In addition, the OLS regression results show that stock market liquidity is a positive driver of growth, while financial depth and stock market capitalisation are negatively correlated with growth.*

*This study has important implications for public policy as well as managerial implications. In particular, the study proposes key measures to attract and sustain FDI inflows and improve absorptive capacity. These measures include economic diversification, infrastructural transformation, enhancing the contribution of financial markets, implementing favourable macroeconomic and investment policies, as well as entrenching political stability and institutional quality.*

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## Authors' Declaration

This piece of work has not been submitted in any other institution as part of a degree award or to any journal for publication. I reserve all copyrights to this thesis.

# Chapter 1

## General Introduction

### 1.0. Introduction

This chapter introduces the fundamental issues and concepts of this research by first giving a brief background analogy. It is important to understand what the research set out to achieve. Therefore, following background review of the research, the major problem is identified and expanded upon in section 1.3 of this chapter. Following the problem identification, the research aim is then set out; as well as the research questions with which the aim is achieved. The research aim and questions is expanded in section 1.5.

Section 1.6 then gives an overview of the methodological framework of the research. First, the key variables and sources of data are discussed, which is followed by the key econometric and statistical methods applied in the research. These methods include cointegration analysis, granger causality and ordinary least squares (OLS). Having mentioned the methodological frameworks, which are further expanded in subsequent sections, it is important to also mention the theoretical framework of the research (Cobb-Douglas production function).

Cobb-Douglas production function as promulgated by Cobb and Douglas (1928) is a historical growth theory upon which most growth models are built. The model or function separates foreign capital stock from domestic capital stock. This study therefore adopts this model, with an extension to show how improvements in the financial markets impacts domestic production. The Cobb-Douglas production function is further discussed in section 2.8.

This chapter finishes off with a definition of key terminologies in section 1.7 and the structural outlay of the thesis in section 1.8

### 1.1. Background of the Research

Foreign direct investment (FDI) has become a key component of economic growth and development especially in emerging countries (e.g. Blomstrom et al., 1992; Caves, 1996; Borensztein et al., 1998; Samad, 2009; Adams, 2009; Danja, 2012; Comes et al., 2018). FDI comprises of external resources such as technology, capital, marketing and management expertise, and other externalities, which create

a significant influence on a host country's productive capacities (Caves, 1996). Given the huge resource base of the Nigerian economy, the country's foreign policy on investment has moved towards the attraction and encouragement of more foreign capital inflow. The desire for FDI is borne out of the level of development of the domestic economy (manifesting in fundamental problems like inflation, unemployment, and exchange rate instability), which has essentially stalled the pace of the country's development. One of the most convincing economic justifications for allowing special inducements for attracting FDI is built on the notion that FDI bridges the "idea gaps" between the rich and the poor nations as well as its ability to generate technological spillovers and transfers (Danja, 2012).

FDI has been found by numerous studies to exert a positive impact on economic growth and development by boosting employment, productivity, technological development and reducing the difference seen between the desired gross domestic investment and gross domestic savings (Borensztein et al., 1998; Ehimare, 2011). However, there is also a general notion that the impact FDI has on economic growth is quite ambiguous, i.e. sometimes positive and sometimes detrimental (e.g. Gorg and Greenaway, 2004)<sup>1</sup>. A likely explanation for this sundry findings may be the failure to model the effects of eventuality in the relationship between FDI and growth. Several economic models propose that the association between FDI and growth may be reliant on other dominant factors. For example, models by Hermes and Lensink (2003) and Alfaro et al. (2003, 2010) predict that the effect of FDI on economic growth is reliant on the development of the local financial markets and institutions of the host country. These studies opine that well-functioning financial markets enable FDI to promote economic growth through the backward linkages; where economic agents in the host country can take advantage of knowledge spillovers from FDI. This leads to improvement in the absorptive capacity<sup>2</sup> of the country with respect to FDI flows. For example, credit-constrained entrepreneurs will find it easier to set up their own businesses as the local financial markets develops and improves (Alfaro, et al., 2010). In essence, well-functioning financial institutions augment capital accumulation, innovation in technology and foster entrepreneurial activity, which then leads to economic growth and development.

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<sup>1</sup> Gorg and Greenway (2004) review several firm-level studies on FDI spillovers. They reported only 6 out of 25 studies find some positive evidence on FDI spillovers.

<sup>2</sup> Absorptive capacity can be defined as the firm's ability to value, assimilate and apply new knowledge (Cohen and Levinthal, 1989)

## 1.2. FDI and Growth: The Role of Financial Development

Whereas it may appear appropriate to argue that FDI can bear greater knowledge spillovers (such as new technology, new processes, managerial skills, productivity gains, etc), the host country's ability to reap the benefits of such spillovers might be limited by inherent local conditions. Such conditions may include, but are not restricted to - the host nation's policy environment, available production assets, institutions and infrastructure (Alfaro et al., 2003). In accordance with recent prominence on the role of local financial markets in channelling the contributions of FDI to economic development, this study particularly argues that the lack of development of a host nations' local financial markets can unfavourably hinder the economy's ability to take advantage of possible FDI spillovers. The position of well-functioning financial markets and institutions in expanding technological innovation, capital accumulation and economic development is being recognized and discussed extensively in growth literature (e.g. Goldsmith, 1969, Shaw, 1973, McKinnon, 1973, Boyd and Prescott, 1986, Greenwood and Janovic, 1990, and King and Levine, 1993a&b, and others).

In summary, these studies argue that well-developed financial intermediaries, by reducing the costs of executing transactions, safeguard capital allocation to the projects that have the highest yields and therefore enhance economic growth. In addition, McKinnon (1973) stated that capital markets development is "necessary and sufficient" to foster the adoption of best practice technologies as well as learning by doing". On the contrary, restricted access to credit markets limits entrepreneurial activities and development. If entrepreneurship brings about greater integration and the adoption of best technological practices made available through FDI, then the non-existence of developed and functional financial markets limits the possible positive externalities of FDI. The role of financial development on the linkages between FDI and growth is discussed extensively in chapter 2.

## 1.3. Problem Statement

Notwithstanding that the Nigerian government has been trying to provide encouraging investment climate to attract foreign investment, the inflow of foreign investment into the country have not been reassuring. An analysis of foreign inflow into the country so far shows that only a small number of multinationals and or their affiliates have made foreign direct investment in Nigeria. The level of FDI attracted

by Nigeria is unexceptional, given its natural and human resource base and potentials (Asiedu, 2003; Ayanwale, 2007). For example, in comparison with other developing middle and high-income countries such as the BRIC economies (Brazil, Russia, India, and China) as well as Mexico and Chile, Nigeria's FDI in nominal terms performs poorly. Table 1.1 shows that the average FDI inflows to Nigeria between 2000 and 2014 (the last fifteen years) was US\$ 4.95 billion, which is very low compared to China (US\$ 86.5 billion), Brazil (US\$ 36.4 billion), Russia (US\$32.7 billion), Mexico (US\$25 billion) and India (US\$20.7 billion). However, the FDI attracted by Nigeria compares favourably with fellow Sub-Saharan African country South Africa (US\$ 4.49 billion) but is considerably lower than fellow oil producer, United Arab Emirates (US\$ 7.6 billion). See also figure 1.1 for a comparison in stacked columns.

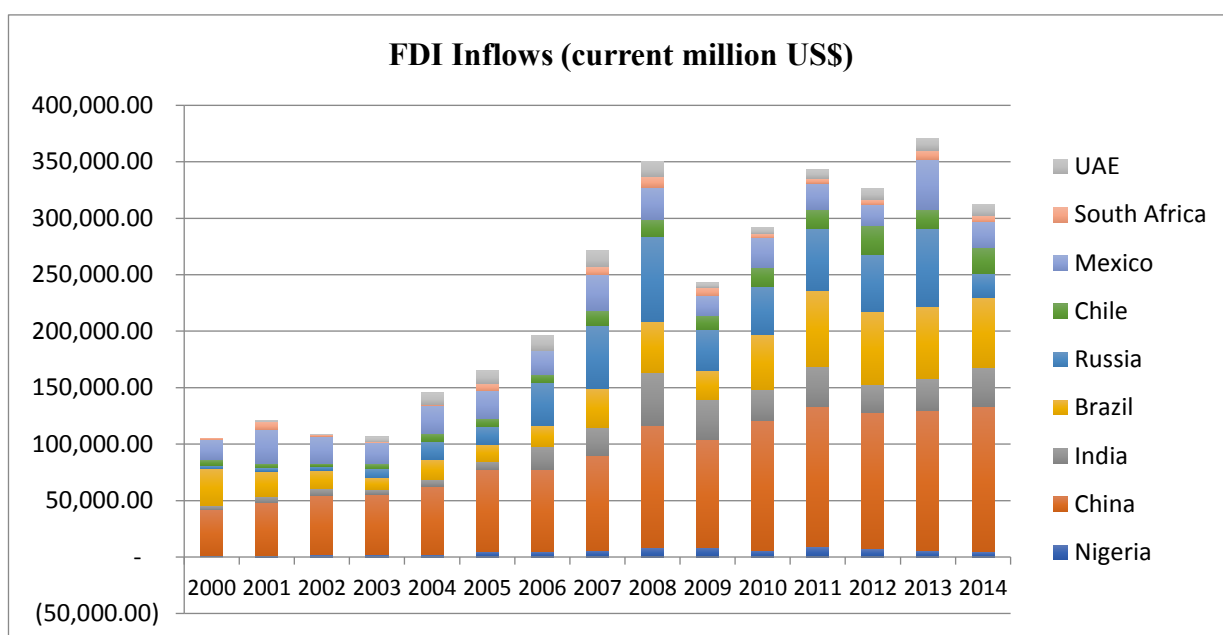
**Table 1.1: FDI Inflows to Nigeria & Other Emerging Economies (Current US\$ Million)**

Year	Nigeria	China	India	Brazil	Russia	Chile	Mexico	South Africa	UAE
2000	309.67	714.81	587.99	2,779.24	714.23	860.00	8,303.11	87.34	506.33
2001	277.42	6,877.59	477.64	2,457.35	748.29	199.80	0,032.01	783.92	183.84
2002	040.18	2,742.86	629.67	6,590.20	461.13	550.00	4,035.99	569.16	5.30
2003	171.39	3,504.70	321.08	0,143.52	958.12	333.67	8,890.59	33.67	255.96
2004	127.09	0,630.00	777.81	8,145.88	5,444.37	241.04	5,129.98	798.03	003.50
2005	978.26	2,406.00	621.77	5,066.29	5,508.06	096.89	4,734.45	646.93	899.93
2006	897.81	2,715.00	327.76	8,822.21	7,594.76	426.27	0,982.25	11.45	805.99
2007	086.73	3,521.00	5,349.89	4,584.90	5,873.68	571.56	2,320.66	538.06	186.52
2008	248.64	08,312.00	7,102.42	5,058.16	4,782.91	518.19	8,610.16	209.17	723.60
2009	649.53	5,000.00	5,633.94	5,948.58	6,583.10	1,867.57	7,678.82	502.06	002.70
2010	098.96	14,734.00	7,417.08	8,506.49	3,167.77	6,788.64	6,082.98	635.60	500.34
2011	914.89	23,985.00	6,190.46	6,660.14	5,083.63	6,930.40	3,375.93	242.87	678.69
2012	127.38	21,080.00	4,195.77	5,271.85	0,587.56	5,021.46	8,950.77	558.85	601.91
2013	608.46	23,911.00	8,199.45	3,995.87	9,218.90	6,576.56	4,626.69	300.10	487.95
2014	693.83	28,500.00	4,416.76	2,494.75	0,957.66	2,949.21	2,794.70	712.31	065.80
Average	948.68	6,575.60	7,749.96	6,435.03	2,778.94	1,728.75	5,103.27	495.30	599.05

Source: UNCTAD Statistics

In addition to this problem of inadequate inflow of FDI is the failure to retain FDI that has already come into the country. Though FDI is a main component of capital inflows for developing countries like Nigeria, its contributions with regards to economic growth is still widely contended. However, most researchers agree that the benefits overshadow the costs on the economy (Musila and Sique, 2006). Ayanwale (2007) suggests that the relationship between FDI and economic growth in Nigeria is yet blurred and recent evidence suggests that the relationship may be country specific and period specific. The directions of causality between FDI and economic growth in Nigeria is still also under-researched. There is therefore a need to carry out more study on the interrelationships between FDI, economic growth and relevant macroeconomic variables.

**Figure 1.1: Comparison of Nigeria's FDI Inflows with other Emerging Economies  
(Stacked Series in Columns)**



Source: UNCTAD Statistics

As noted earlier, well-functioning financial markets tend to magnify the gains from FDI by enhancing the host country's absorptive capacity. Though numerous studies have examined the link between FDI and economic growth in Nigeria (e.g. Adelegan 2000; Akinlo, 2004; Anyanwale, 2007; Egbo and Onwumere, 2011; Ehimare, 2011; Awolusi, 2012; Onakoya, 2012; Umoh et al., 2012; Eravwoke and Eshanake, 2012; Olusanya, 2013), only a few studies have been able to consider the causal relationships among financial development, FDI and economic growth (e.g. Nwosa et al., 2011; Saibu, et al., 2011). Notwithstanding, these studies only examine the causal influence of FDI and financial development on economic growth separately without considering the role of financial development in shaping the relationship between FDI and economic growth. This is thus the gap in the literature to which this study hopes to contribute. That is, this study intends to examine the impact of FDI on economic development through financial development.

#### 1.4. Contributions to Knowledge

This study clearly makes contributions to the literature on the causality between FDI and growth as well as between Financial development and FDI. Specifically, the study makes important contributions to the literature in four unique ways. Firstly, this

study aims to observe the financial development networks through which FDI may be growth inducing, as well as other factors that drive growth along with FDI. As mentioned earlier, it has also been hypothesised that functional financial markets help to enhance the absorptive capacity of FDI in the host economy and magnify the spillover effects of FDI on growth. Suffice it to say that no study (to the knowledge of the research) has examined the role of financial development in shaping the linkages between FDI and growth in Nigeria. Second, the study makes theoretical contributions in the sense that it extends the Cobb-Douglas production function to illustrate how improvements in the financial markets impact the effects of FDI on domestic productivity. Third, the study makes some methodological contributions as it uses a mix of methodologies, including cointegration, Granger causality and OLS techniques to provide suitable answers to the research questions. In particular, it attempts to resolve common methodological issues relating to the estimation of Cobb Douglas type production function or growth equations, including those related to collinearity, non-stationarity and endogeneity. Fourth, the study makes policy contributions, as it provides robust and evidence-based policy implications of the findings.

### 1.5. Research Aim and Questions

Arising from the background and problem statement, this study aims to empirically investigate the relationship that exists between FDI and economic growth in Nigeria, with specific reference to the role of financial development in shaping this relationship. Thus, the study attempts to provide answers to three research questions:

1. Does FDI promote economic growth generally and particularly in Nigeria?
2. What role does financial development play in enhancing the impact of FDI on the domestic economy?
3. Is there any causal relationship between FDI and financial development and between financial development and growth?

The answers to these research questions helps to strengthen the discourse on FDI's impact on economic growth in Nigeria and in particular, on the role of financial development in this process. The outcome of this study is also compared to the results of similar studies on the economic impact of FDI in Nigeria and other emerging markets such as Asia, Latin America, Middle East and other Sub-Saharan



African countries. Finally, this study aims to proffer relevant policy suggestions for consideration by economic policy makers as well as highlight important managerial implications for multinational companies and other international investors.

## 1.6. Research Methodology (Overview)

### 1.6.1. Key Variables and Data Sources

This study used such key data as the indicators of FDI, financial development and the indicators of real economic growth. The sample consists of time series data of 45 observations across the period of 1970 to 2014. This sample is mainly informed by two reasons (1) the availability of Nigerian data and (2) the structural adjustment program (SAP), which is a major economic policy break between the sample period. Following Nwosa et al. (2011), the FDI variable is measured using the direct investment items in Nigeria's balance of payment account. Whereas economic growth is measured using the real gross domestic output (RGDP), which is derived by dividing the nominal gross domestic output (NGDP) by the consumer price index (CPI). Data on FDI was obtained from the United Nations Conference on Trade and Development (UNCTAD)'s FDI Statistics, which reports both inward and outward flows and the net FDI inflows. The model adopted by this study focuses on the attraction of FDI inflows to the Nigerian economy. Therefore, this study used the FDI inflow measure as a percentage of GDP.

Financial development indicators can be divided into two classes: (1) bank-based indicators and (2) market-based indicators. Bank based indicators are classified into three groups, which are (1) measures of financial depth, (2) misallocation of financial resources and (3) market-oriented financing (Guariglia and Poncet, 2006). These indicators helps us to account for both the quality and size effects of financial development and its intermediaries. To measure financial dept or banking sector size, there are two appropriate measures. The first ratio is the ratio of savings deposit<sup>3</sup> or liquid liabilities<sup>4</sup> to GDP. The second indicator is the ratio of total private sector credits to GDP. These two indicators help to measure the financial resources that are available for investment in Nigeria. To assess the specific impact of mis-allocation of funds, a third variable is introduced – the ratio of loans to deposits. The

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<sup>3</sup> Savings deposit here generally refers to the interest-bearing liabilities of banks and non-bank financial intermediaries

<sup>4</sup> Liquid liabilities usually represent M1, M2 or M3 (Chee and Nair, 2010).

second group of financial development indicators, known as market-based indicators is mainly associated with the stock market. Brasoveanu et al. (2008) classified the stock market indicators into categories namely: (1) size variable, and (2) liquidity variable. The size variable is represented by the ratio of market capitalization to GDP, while liquidity variables are proxied by (i) value added ratio defined as trading volume/GDP and (ii) turnover ratio defined as trading volume/market capitalization as used by Levine and Zervos (1998). Data on private credit and liquid liabilities will be obtained from the World Bank's World Development Indicators (WDI), while stock market indicators will be collected from the Nigerian Stock Exchange (NSE).

Several control variables (measuring the determinants of FDI and other drivers of growth) were also used in the regressions, including: government consumption/GDP, trade openness (i.e. volume of exports and imports as a percentage of GDP, inflation rate, population growth, human capital proxy, measure of infrastructural development, and institutional quality. These data were obtained from the World Bank's WDI and Central Bank of Nigeria (CBN) statistical bulletin.

#### 1.6.2. Econometric Methods Used

This study utilizes three main econometric methods to help in answering the three research questions: (1) Cointegration Analysis (2) Granger Causality, and (3) Ordinary Least Squares (OLS). First, Johansen's co-integration analysis was employed to examine the joint movement of FDI, financial development and economic growth. Co-integration analysis was used to find out if there is a long run relationship between FDI, financial development and economic growth. To address research question (1), the Granger Causality test will be applied in this research study to see whether FDI is the one that Granger causes growth or whether growth is the one that Granger causes FDI and a period of 45 years (1970-2014) will be used for this analysis. To address the research question (2) this study will examine the financial markets/financial development channels through which FDI may be beneficial to growth. The method used in this study to investigate research question (2) is the OLS technique. OLS will be used to examine the direct effect of FDI and financial development on economic growth and then proceed to capture the role of financial sector development in promoting and enhancing the contributions of FDI on economic growth using FDI-Financial Development interaction terms. Given that

the level of impact FDI has on growth may be subject to a minimum threshold level of financial development, it is thus appropriate to check whether FDI itself could lead to financial development and in doing so, enhance its chances in growth stimulation (e.g. Omran and Bolbol, 2003) as well as whether financial development impacts on growth. The granger causality test is also employed here to answer research question 3. It is important to state here that before making use of any of the tests, including the Granger Causality test, cointegration analysis and the OLS technique, the researcher will establish that the data is stationary by carrying out a stationarity test, that is, to check for the presence or absence of unit roots in the time series. The ADF test was used to deduce the number of unit roots (if any) or non-stationarity of the variables, before carrying out a co-integration test among the variables. In addition, the regressors were rigorously tested for multi-collinearity and affected duplicate variables were removed from the model.

### 1.7. Definition of Key Terms

**Foreign Direct Investment (FDI):** FDI is seen as an investment made by an entity or a company based in one country, into an entity or a company located in a different country. Foreign direct investment is substantially different from other forms of indirect investments such as portfolio inflows, where foreign-based institutions invest in listed equities on a country's stock exchange. Companies making direct investments will typically acquire a lasting interest in the company into which the investment is made and have a significant degree of control and influence over it.

**FDI inflows and outflows:** net FDI inflows are seen as the value of inward direct investment made by foreign investors in a host economy. Net FDI outflows are considered as the value of outward flowing direct investments by the residents of a reporting economy to foreign economies.

**FDI spillovers:** FDI spillovers are generally seen as the impact the presence of foreign firms have on domestic firms regarding their economic performance. The standard analytical approach in the empirical literature is to analyse spillovers as additional inputs that explain total factor productivity (TFP) in the framework of a production function.

**Economic Growth:** Economic growth is defined as an upward rise in the capacity of an economy in the production of goods and services, when compared from one economic period to another. Economic growth is measured in either nominal terms (i.e. nominal GDP), or in real terms, after adjusting for inflation (i.e. real GDP). To account for the average output of the economy per person, the real GDP per capita is often used as a more appropriate measure of economic growth because it helps in international comparison. This latter measure will be used in this study.

**Financial Development:** The development of financial sector in emerging markets and in developing countries is part of the strategy for private sector development to stimulate growth in the economy and reduce poverty. The financial sector is a set of markets, instruments and institutions. It comprises the regulatory and legal framework that permit transactions to be conducted through the extension of credit. Financial development is the process of making improvements in quantity, quality, effectiveness and efficiency of financial services and its intermediaries.

**Granger Causality:** Granger causality is a statistical theory of causality, which is founded on prediction. With Granger causality, if a variable  $X_1$  "Granger-causes" a Variable  $X_2$ , then past values of  $X_1$  should hold information that will help in predicting  $X_2$  beyond such information as held only in the past values of  $X_2$ .

**Cointegration:** Cointegration is a statistical element of a collection such as ( $X_1$ ,  $X_2$ ...,  $X_k$ ) of time series variables. In the first instance, all the time series data have to be integrated of order 1 [i.e.  $I(1)$ ]. Second, assuming a linear combination of such time series collection is integrated of order zero [i.e.  $I(0)$ ], then the collection is assumed to be co-integrated.

**Ordinary Least Squares (OLS):** OLS is a method of estimation in which the unknown parameters in a linear regression model are estimated. The objective of OLS is to ensure a close "fit" of the function and the data. This is done through the minimization of the sum of squared errors from the data.

## 1.8. Structure of the Thesis

The thesis is structured into **seven chapters** as follows:

**Chapter 1**, which is the introduction chapter, explains the background of the research, the problem statement, contribution to knowledge, research aims and objectives, research questions, overview of the research methodology and definition of key terms. This chapter also briefly introduce the role of financial development in the FDI-Growth nexus, which is the crux of this thesis. The methodology section outlined the key variables and data sources as well as the econometric methods used.

**Chapter 2** focuses on the general literature review on FDI and economic growth as well as the role of Financial Development. First, it takes a look at the history and overview of World FDI. Second, it considers the rationale for FDI in developing countries. Third, it reviews the literature on the causality between FDI and economic growth as well as the factors affecting FDI spillover effects in the host economy. Next, the significance and problems of FDI inflows to the host economy is examined and then the problems of empirical evaluation of the FDI-growth relationship is also described. Finally, the chapter provides a theoretical framework for the interactions between FDI, growth and financial development.

**Chapter 3** specifically examines the empirical literature on FDI, financial development and economic growth in Nigeria. The chapter begins with the background of the Nigerian economy and then explains the determinants of FDI in Nigeria. The chapter also presents some stylised facts about FDI inflow in Nigeria in both sectoral and graphical formats. Next, the impact of FDI on economic growth in Nigeria is examined as well as the role of financial development on the linkages.

**Chapter 4** provides the methodology and analytical framework for the study, including the epistemological considerations, the data and measurement variables, description of econometric methods and model specification for the different aspects of FDI, growth and financial development relationships.

**Chapter 5** presents and analyses the data in descriptive form, showing various data transformations and tests, descriptive statistics and univariate analysis on the data characteristics and statistical relationships between different indicators.

**Chapter 6** focuses on the empirical data analysis, including the regression models and results of the various tests on the links between FDI, economic growth and financial development using granger causality, cointegration and OLS. It also provides some discussion of the results on the causal relationships between FDI, financial development and economic growth and the role of financial development on the links between FDI and economic growth. This chapter also presents some robustness checks.

**Chapter 7** concludes the thesis by summarising key findings from the thesis and provides some policy implications and managerial implications as well as a note of the limitations of the study. Lastly, it provides some direction for future research.

## Chapter 2

### Literature Review

#### 2.1. Introduction

Literature is awash with research studies that echo the benefits of FDI on the domestic economy, namely that foreign companies introduce new processes and products to the domestic market, leading to productivity gains. Foreign firms also accelerate the diffusion of new technology and the transfer of managerial skills and technical know-how. In recognition of these benefits, the evolving literature on FDI suggests that the positive impact of FDI on economic growth is dependent on absorptive capacities, i.e. (World Bank, 2001) and that a key component of these absorptive capabilities is the development of local functional financial markets (Hermes and Lensink, 2003; Alfaro et al., 2004, 2010, etc). For example, it is claimed that the benefits of FDI in the domestic economy can be enhanced and amplified with well-functioning financial markets. From examination of key studies, this argument is based on three key premises. First, functional financial institutions can offer access to external finance for entrepreneurs wishing to establish or expand their businesses in line with new technological developments. Second, financial institutions will ensure that capital is efficiently allocated to deserving businesses and will monitor these funds. Third, well-developed financial markets reduce the cost of external finance by lowering the cost of conducting transactions (Rajan and Zingales, 2000; Alfaro, et al., 2004). The overall effect of these is that well-developed and functional financial markets will consolidate productivity gains from FDI and lead to capital accumulation, and in-turn promotes economic growth.

This chapter reviews the literature on the impact of FDI on the economic growth of the host economy as well as the role of financial development on the linkages between between FDI and economic growth. Section 2.2 looks at the history and overview of World FDI providing relevant statistics on the net providers and takers of FDI flows. Next, section 2.3 highlights the importance of FDI in developing countries and what value it brings to economic development. In section 2.4, the issue of causality between FDI and economic growth is examined, while section 2.5 explains the factors affecting FDI spillover effects in the host economy, particularly the role played by financial market development and other enabling factors. Section

2.6 is fully devoted to assessing evidence on the role played by financial development in enhancing the impact of FDI on the host economy, which is a major aspect of this study, while section 2.7 rationalizes a theoretical framework for the relationship between FDI, growth and financial market development. Finally, section 2.8 examines the problems of empirical evaluation of the FDI-growth-finance relationship. The chapter concludes in section 2.9.

## 2.2. History and Overview of World FDI

FDI by definition is the net inflow of investments in order to gain a lasting management interest (10% voting stocks or more) in a company operating in an economy different from that of the investor.<sup>5</sup> To further explain this, it comprises the investment of foreign assets, which are not essentially monetary in a domestic economy other than that of the investors. Thus, FDI is the process in which residents of one country (known as the source/home nation) gain ownership of resources in order to control the production, distribution and other activities of a company in another country known as the host nation/country (Moosa, 2002). FDI is a parameter for international exchange, which has gained reception over the years given to the desire for global interaction and competition, foreign ownerships, as well as the prospect of channelling resources to developing and emerging economies. Ever since its inception, FDI has led to the transfer of such assets as technology, knowledge, capital inflows, management skills, to mention just a few.

The earlier accounts of FDI transactions were predominantly in the form of money lending by Great Britain to other host countries, to enable the host country's economic development and growth in the global scene. Nevertheless, foreign investment decayed after a while (especially post Second World War), which then saw Great Britain's position as the only provider of funds for direct investment in host countries overturned by the United States (USA), which became the highest single provider of FDI. In the aftermath of the Second World War, there was an increase in FDI transfers to host countries. This was as a result of the arrival of new technologies that were to be sold or globally spread, the need to help in rebuilding most countries and economies devastated by the war (for example Japan), as well as the desire of most US corporations to spread their corporate activities across national boundaries. USA, among the top countries that participated in this regard

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<sup>5</sup> World Bank Data - <http://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD>



has always engaged FDI as a vital macro-economic variable to help fast-track economic growth and development, as well as global inter-dependence among participating countries as reported in Luke and Caiden (1989), Kline (1984a & 1984b), McIntyre (1983) and Neuse (1982). Over the last two decades, the positive impact of FDI had been felt in so many countries; beginning from the developed countries who made up both the home and host countries. It later gained acceptance among the developing ones (e.g. China, India, Russia, Brazil, etc). They have also in recent times, presented themselves as the big hosts for FDI inflows across the world. There are available statistics to support the increased volume of inflows and outflows of FDI from the US and other developed countries to other regions of the world within the last decade from 2006 to 2014 (see Table 2.1).

From Table 2.1, it can be observed that the United States is a pioneer and dominant leader in the provision of FDI outflows recording the highest amount of outflows and inflows over the years<sup>6</sup>. This is due to the determination of foremost US companies and businesses expand operations by spreading awareness and branches beyond their national boundaries. And also, the global involvement of the US to extend assistance and resources through the provision of technology, funds, technical know-how and manpower to countries devastated by war in the aftermath of the second world war. The other developed countries such as Great Britain (recording the second highest outflow in 2007), Germany, France, Japan and Canada also had a meaningful global impact by making remarkable outflow to developing and emerging economies.

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<sup>6</sup> FDI statistics dating from 1980 can be found at the UNCTAD Statistics database

**Table 2.1. Top Providers and Hosts of FDI flows (2006 – 2014)**

	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Top FDI Providers</b>									
<b>FDI Outflows (US\$ Million)</b>									
<i>USA</i>	224,220	393,518	308,296	287,901	277,779	396,569	311,347	328,343	336,943
<i>Japan</i>	50,266	73,549	128,020	74,699	56,263	107,599	122,549	135,749	113,629
<i>Germany</i>	116,679	169,321	71,507	68,541	125,451	77,930	66,089	30,109	112,227
<i>Canada</i>	46,214	64,627	79,277	39,601	34,723	52,148	53,938	50,536	52,620
<i>France</i>	76,767	110,643	103,282	100,865	48,156	51,415	31,639	24,997	42,869
<i>Netherlands</i>	72,583	55,605	68,492	26,273	68,358	34,789	5,235	56,926	40,809
<i>Spain</i>	104,248	137,052	74,717	13,070	37,844	41,164	(3,982)	25,829	30,688
<i>Italy</i>	43,797	96,231	67,000	21,275	32,655	53,629	7,980	30,759	23,451
<i>UK</i>	75,853	319,330	189,045	20,562	46,633	107,801	28,939	(14,972)	(59,628)
<b>FDI Hosts</b>									
<b>FDI Inflows (US\$ Million)</b>									
<i>East Asia</i>	132,988	161,264	186,726	163,840	201,825	233,878	212,428	221,450	248,180
<i>South Asia</i>	28,590	34,557	56,655	42,403	35,024	44,539	32,415	35,624	41,192
<i>S-East Asia</i>	64,558	85,975	50,307	46,134	105,151	93,535	108,135	126,087	132,867
<i>West Asia</i>	68,275	78,765	94,149	71,415	59,852	53,356	47,862	44,718	43,046
<i>Caribbean</i>	3,010	3,438	7,137	3,471	2,979	4,445	6,164	4,764	5,281
<i>Cent. America</i>	26,896	39,864	36,295	22,302	32,404	31,998	28,004	55,399	33,416

<i>South America</i>	43,574	73,292	94,249	57,740	96,345	127,426	143,881	125,987	120,708
<i>Eastern Africa</i>	3,244	5,883	6,294	5,500	6,686	10,086	14,320	14,818	14,454
<i>Cent. Africa</i>	1,363	3,855	6,100	7,725	4,836	4,517	2,375	1,650	7,875
<i>North Africa</i>	21,501	23,015	22,206	18,134	15,745	7,548	17,151	13,658	12,241
<i>Southern Africa</i>	1,364	7,908	10,750	8,295	4,797	6,598	6,267	9,634	6,578
<i>West Africa</i>	7,057	9,546	12,420	14,725	12,008	18,956	16,322	14,208	12,763

**Source:** UNCTAD Statistics<sup>7</sup>

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<sup>7</sup> UNCTAD statistics data-stream, available at: <http://unctadstat.unctad.org>

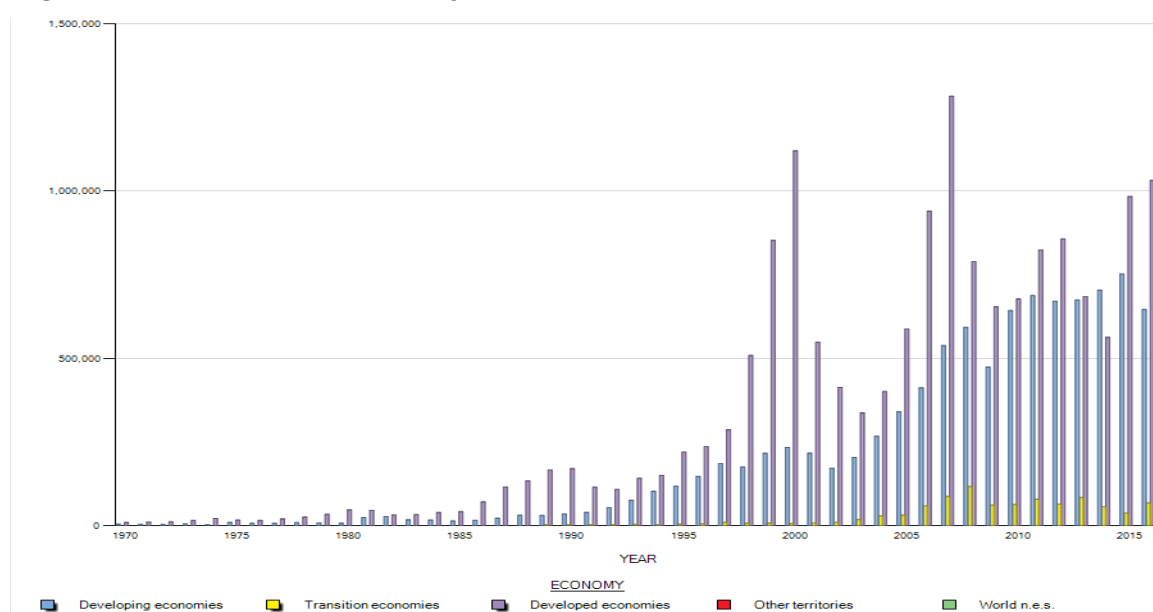
According to current trends in FDI flows revealed by UNCTAD's (2015) World Investment Report, FDI inflows to *developing countries* now account for 55% of the global total (see Table 2.2. and Figure 2.1). Developing Asia drive the increase while Latin American flows dropped between 2013 and 2014 and those to Africa have remained flat over the same period. FDI inflows to developed countries reduced by 28% to \$499 billion. FDI flows to the United States dropped to \$92 billion (40% of their 2013 level), and this was mainly as a result of the divestment of Verizon by Vodafone, without which FDI flows to the United States would have stayed stable. FDI flows to *Europe* also dropped by 11% to \$289 billion. Among the European countries, inflows declined in Belgium, Spain, France and Ireland while the United Kingdom, Finland and Switzerland recorded an increase.

**Table 2.2: Global FDI Inflows by Group of Economies (2010-2014) (US\$ Million)**

	2010	2011	2012	2013	2014
Developed Economies	673,199.00	827,350.73	678,729.88	696,853.53	498,761.74
Developing Economies	579,890.60	639,135.17	639,021.52	670,789.92	681,386.67
Transition Economies	75,012.9	97,263.0	85,135.2	99,589.6	48,114.1
<b>World Total</b>	<b>1,328,102.46</b>	<b>1,563,748.88</b>	<b>1,402,886.62</b>	<b>1,467,233.01</b>	<b>1,228,262.51</b>

**Source:** UNCTAD Statistics

**Figure 2.1: Global FDI Inflows by Group of Economies (1970-2015) (US\$ Million)**



**Source:** UNCTAD Statistics

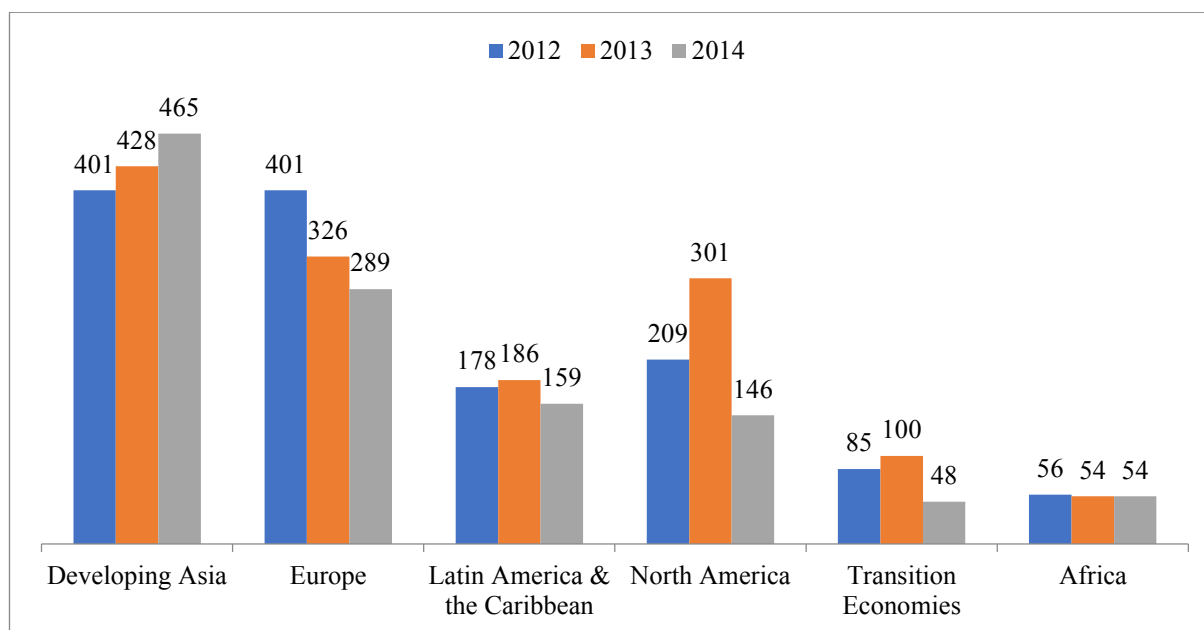
FDI inflows to transition economies fell by 52% to \$48 billion, because of the regional sanctions and conflict that discouraged new foreign investors. FDI inflows to the Federation of Russian declined by 70% to \$21 billion, which was partly an adjustment from the level it reached in 2013. FDI inflows to developing countries and economies saw an increase of 2% to a historically high level in 2014, recording \$681 billion. Developing Asia led the increase while Latin American flows and the Caribbean dropped, and Africa FDI flows remained at a flat level (see Figure 2.2).

FDI inflows to Asia increased by 9% to \$465 billion in 2014. South Asia, East Asia and South-East Asia all recorded increased inflows. FDI inflow to China amounted to \$129 billion, up by 4% from 2013, largely due to an increase in FDI in the services sector. Singapore and Hong Kong (China) also recorded an increase in FDI. In the case of India, there was a significant increase of 22% to \$34 billion. Nevertheless, FDI inflows to West Asia continued on a downward drift in 2014 for a consecutive sixth year, falling by 4% to \$43 billion, given the security challenges in the region. FDI inflows to *Latin America and the Caribbean* – not including the Caribbean offshore financial centres – declined by 14% to \$159 billion in 2014, following four consecutive years of increases. This fall was mainly as a result of a 72% fall in cross-border business mergers and acquisitions (M&As) in the Caribbean and in Central America, and of lower prices of commodities, which led to the reduction of investments in the extractive industries in South America. Whereas FDI flows to the Bolivarian Republic Venezuela, Colombia, Argentina, Peru, and Mexico declined, Chile recorded an increase in its flows, as a result of high levels of cross-border mergers and acquisition (M&A) sales. In Brazil, there was a compensating effect in sectors as the sharp fall of FDI in the primary sector compensated for an increase in FDI in the manufacturing and services sector, maintaining total flows similar to 2013 levels.

FDI flows to Africa remained at its stable level of \$54 billion. While there was a decline in North African FDI flows by 15% to \$12 billion, flows to Sub-Saharan Africa increased by 5% to \$42 billion. Within Sub-Saharan Africa, West Africa FDI flows fell by 10% to \$13 billion, as the health epidemic (Ebola), falling commodity prices and regional conflicts negatively affected several countries in the region. Southern Africa flows also fell by 2% to \$11 billion. In contrast, East Africa and Central Africa saw their FDI flows increasing by 11% and 33%, to \$7 billion and \$12 billion, respectively. However, UNCTAD's FDI Statistics show that the volume of FDI

inflows to Africa where our case study (Nigeria) is situated is far less than that of other developing regions of the World such as the Developing Asia, Latin America and the Caribbean (see Figure 2.2). In the same vein, as noted in chapter 1, Nigeria receives far less FDI than other emerging countries such as Brazil, India, China, Mexico, Russia, etc. Next section throws more light into the factors that drive FDI flows in developing countries (including Nigeria) as well as the enabling factors can enhance or constrain their impact<sup>8</sup>.

**Figure 2.2. FDI Inflows by Region, 2012-2014 (US\$ Billion)**



**Source:** UNCTAD World Investment Report (2015)

### 2.3. Economic Rationale for FDI in Developing Countries

Foreign investment is often seen as a complementing driver of economic performance amid the inadequate investment base of emerging and transitional economies. This section brings to the fore more specific issues usually discussed concerning the impact FDI has on growth in emerging and transitional economies. First, we examine inward FDI as a policy response to strategic development. Second, we examine the ways through which FDI may be growth constraining or growth inducing. These two aspects are intertwined; and may reflect intuitively inter-dependent opinions. However, they exhibit some distinctiveness for which their understanding will provide the reader with some detailed outlook into the mechanisms of FDI and growth. Therefore, the question to ask is not whether FDI

<sup>8</sup> Chapter 3 is devoted to specifically examining FDI and Financial Development in the Nigerian context.

is good for growth, since there is almost a consensus agreement to this. Rather, the question is; how can it be galvanized effectively in developing and transition countries and in what fraction should it be applied so that it can produce preferred results especially for economic growth?

### 2.3.1. FDI as a Strategic Host Economic Development Policy Response

This perspective is underscored by a publication; UNCTAD (2003), which illustrates the need for coordinating and integrating FDI with regards to the “corporate strategies and the competitive advantage of the host-countries”. According to this view, FDI should be used as a global response to economic development and should be tailored in accordance with the circumstances of the recipient country. Within this viewpoint, one school of thought is predicated in the neo-liberal development rational, which comprises the biggest international financial organizations (IFOs) like the World Bank, the IMF and the United Nations Organization (UNO). They believe that the weak growth dilemma of most developing countries is because of central issues like lack of globally open economies and extreme state involvement (Rodrik, 2006). The idea is that the openness of a domestic economy would stimulate FDI inflows, and then bring about growth by boosting domestic savings. Some IFO country’s specifics and general reports are published frequently to buttress their claims on the effectiveness of inward FDI in developing countries and transitional economies (e.g. Utz, 2008). This school of thought therefore suggests that the policy instrument of openness, liberalization, and relegations of the state to regulatory responsibilities are a very effective undisputable channel to the development of the economies lagging in growth. Hence, FDI can generally promote growth with such measures in the environment.

However, another school of thought believes and suggests that an unregulated liberalized economy may be more detrimental than beneficial to growth (UNCTAD, 2003). For instance, in order to attract FDI, host economies may have to provide some incentives such as implementing subsidy regimes, tax incentives, and other forms of incentives to encourage foreign investment, which may not be sustainable in the long run. Some others argument was that the promotion of FDI should be done in a way that it reflects the intrinsic competitiveness of the host countries (ESCAP<sup>9</sup>-UN, 2003). This publication emphasized that it is misleading to think that

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<sup>9</sup> ESCAP: Economic and Social Commission For Asia And The Pacific.

FDI determines a host country's competitiveness; instead of the host country's competitiveness dictating the volume and type of FDI that should be attracted (p. 2). Certainly, this opinion is reinforced by the strategic location and outsourcing of manufacturing by major multinational corporations in the Asian economies in order to benefit from the relatively cheap labour within these countries. This publication further outlined the determining factors of such a competitive advantage-oriented FDI. These are broadly categorized into two: first is firm specific and second is host country specific (p. 12). This approach has become popular, as many governments all over the world are beginning to adopt it rather than the approach that just opens the economy to FDI without any policy plan.

Kumar (2009) suggests that if developing countries want to catch up with their developed counterparts, the interests of both the host and home states in relation to FDI flows need to be aligned through carefully formulated host nation policies. Another side of the argument in favour of FDI that is focused on domestic policy suggests that it may even be more beneficial because of the belief that different sectors and different types of FDI have opposing influences on the host economies. Another area of worry for which policing or monitoring has become a main FDI initiative is about risk mitigation and aversion. FDI as a flow of capital exposes both the investors and the recipient economies to the risk of political and economic shocks typical of emerging and developing economies. And if these economies are to attract, secure, and promote FDI inflow, hedging their economies is unavoidable and necessary. An IMF report on FDI in emerging economies offers some theoretical explanations as to why expectations of such confidence are important – to avoid the risk of volatility of capital flows arising from a possible risk of capital repatriation (IMF, 2003: 25-29).

### 2.3.2. Avenues through which FDI may be growth inducing or constraining

Several research in the FDI body of literature attempt to offer explanations as to the circumstances in which FDI can be growth persuading and when it can be harmful or detrimental to growth in host countries. As already mentioned above in the previous sub-section, the nature or manner in which FDI inflows enters and leaves the economy matters to a very large extent. It has often been suggested that FDI affects growth positively through externalities such as by augmenting domestic investment, large capital mobilization and technological transfers (Chakraborty and Nunnenkamp, 2008; OECD, 2002; UNCTAD, 2003). Nevertheless, factors such as



corruption, economic and political instability, and other general domestic bottlenecks also impede FDI benefits or discourage FDI entirely in host economies (World Bank, 2010).

An avenue that has been extensively recognized for growth-promoting FDI is through Multinational Enterprises (MNEs) and their activities. Lall and Narula (2004) argue that due to their access to production and knowledge economies, MNEs can encourage productivity in host countries resulting in externalities or spillovers from their activities. However, for MNEs to successfully and effectively contribute to the performance of the domestic economy, the host institution must have an “‘internalisation’ strategy to interact effectively with the country’s capabilities and resources” (p. 450). Lall and Narula (2004) conclude on their claim that FDI does not and will not necessarily guarantee growth unless a domestic industrial sector which has the appropriate technological capabilities to gain from the MNEs activities exists (see also absorptive capacity in section 2.5.1). Another major MNEs-FDI activity, which provides the possibilities of economic development and growth in most emerging countries, is with the privatization of State-Owned Enterprises (SOEs) and their acquisitions by MNEs. Within this area, Portelli and Narula (2006) show that the gains from MNEs’ acquisitions in Tanzania produced positive gains in the economy for specific industries, particularly through enhanced backward linkages. Their research, which was country specific, is in harmony with that of Lall and Narula (2004) already reviewed above. These gains were seen in the sectors that had a domestic comparative advantage and the sectors with “wider technology gaps” between domestic- and foreign-owned sectors may result in “fewer backward linkages” (p. 789).

As already clearly highlighted above, MNEs are central to bringing pro-growth FDI through backward linkages and technological externalities and spillovers. However, what and how much do we know about the mechanisms behind this assertion? Alfaro et al. (2004, 2010) offers some empirics, which suggests that a crucial factor that would guarantee the backward FDI linkages and spillovers provided by MNEs activities is local financial markets development. They also found considerable growth effects emanating from FDI when goods that are produced by domestic firms and those produced by foreign MNEs are substitutes to each other. Human capital stock is also recognised to be an important resource for host economies; if they are to effectively benefit from the positive spillovers and linkages from MNEs-driven FDI.

Several other works have emphasized the importance of availability of resources (either natural or reproductive resources), or geographical elements as factors that could particularly promote and attract FDI inflows. In this regard, Wei (2005) found an evidence based difference in FDI inflows between China and India as mainly due to the differences in “international trade ties” and “size of domestic market”. This was regardless of the comparatively better position India had with regards to her comparatively “cheaper labour cost”, “lower country risk”, and “geographical closeness to OECD countries”. However, even these non-induced factors, though essential, are not conditions sufficient for promoting and attracting FDI inflows. The importance of this argument in this section, which is different from the previous argument is summarised in the following question: how could FDI be an adequate incentive for the maximization of its growth yielding influence on economic growth?

One maximization approach which has been well discussed is the strategic use of state collaborations, particularly for transitional/emerging economies. It is because such collaborations will see through a relationship whereby the lead country in the relationship through project-specific frontiers can encourage spillovers through, for example, MNEs’ activities in the countries in which they have interest. Pereira (2003) gives an example in which this kind of solution has thrived where he gives a detailed exposition on the China-Singapore Suzhou National Park MNEs relationship from the period of 1992 to 2002. In this paper, he explored the benefits that could be derived from collaboration instead of competition; especially in a global economy that is rapidly globalizing. From a wider viewpoint, both source categories of inward FDI as previously reviewed above can adequately be grouped into ‘host-country specific’ determinants as well as ‘industry/sector specific’ determinants (ESCAP-UN, 2003, p. 3). As explained earlier, both of them are evidently mutually inclusive and reinforce each other.

#### 2.4. Does FDI Promote Economic Growth?

Over the past two decades, many country-specific and cross-country studies have examined the role of FDI in stimulating economic growth in less developed countries (LDCs). But the direction of causality remains an unresolved issue. There has been findings that support the notion that FDI has the tendency to promote economic growth. According to this view, FDI provides important ingredients that are

necessities for economic growth. By providing managerial skills, new production processes and techniques, as well as new varieties of capital goods, FDI invariably promotes economic growth of LDCs (Samad, 2009). Borensztein et al. (1998) found that FDI is a vital channel for the transfer of new technologies, contributing to growth in much more measures than domestic investment could possibly do. However, their result suggests that FDI contributes to growth if and when the host country attains a minimum threshold level of human capital. Blomstrom et al. (1992) found evidence to suggest that FDI Granger causes economic growth. However, FDI's positive contribution is based on the condition that the host country attains a sufficiently high per capita income. De Mello (1997) also found that FDI had significantly positive effect on economic growth in the countries with high-income level. Caves (1996) encapsulates the positive effects of FDI as introduction of new processes, productivity gains, technology transfers, managerial skills and technical know-how in the domestic market, access to markets, employee training and international production networks. Jyun-Yi and Chih-Chiang (2008) used a GMM method, which specifies FDI to be endogenous and found an insignificantly negative relationship between FDI and growth. However, when they used threshold models, their result indicated that FDI can have a significantly positive impact on growth in countries which have attained relatively better levels of human-capital and initial output. Adams (2009) analyses the impact of FDI and domestic investment on economic growth in Sub-Saharan Africa for the period of 1990-2003 employing OLS and fixed effects estimation. Their results showed that both domestic investment and FDI are positive and significantly correlated with economic growth but found evidence of a net crowding out effect of FDI on domestic investment.

On another hand, some studies found that economic growth precedes FDI. According to this view, economic growth first provides the necessary and favourable economic factors upon which FDI will play a positive role for economic growth and development. For instance, the spillover effects of technological transfers through FDI can only be effective when the absorptive capacity of host countries is developed. In his argument, Zhang (2000) suggested that economic growth leads to FDI growth. Speedy economic growth in the host country increases total demand, which in turn stimulates higher demand for investments and by extension FDI. Other authors found a bidirectional link between FDI and growth, implying that FDI and economic growth are positively interdependent. Among the authors that found a bidirectional causal relationship are Caves (1996) and Chowdhry and Mavrotas

(2006). Caves (1996) found that robust economic growth provides high profit opportunities that attract higher domestic and foreign direct investments. Again, FDI through its spillover effects has direct positive impact on economic growth of the host countries. Chowdhry and Mavrotas (2006) found that in Chile, GDP causes FDI (and not vice versa) but found strong evidence of bi-directional causality between FDI and GDP in Malaysia and China. Within the context of South East Asia and Latin American countries, Samad (2009) also found evidence of both unidirectional causality flowing from GDP to FDI in some countries and bi-directional causality from GDP to FDI. Turkan and Yetkiner (2008) adopted a two-equation simultaneous GMM estimation method on several OECD countries, treating economic growth and FDI variables as endogenous. They found FDI growth and economic growth to significantly define each other. This means that they have a reinforcing relationship, which is endogenous in nature.

In similar vein as the above authors, they found that export growth and human-capital were statistically significant determinants of both FDI and economic growth. Jayachandran and Sellan (2010) explored the relationship that exists between trade, FDI and growth for India over period of 38-years from 1970. Their findings were unambiguously contradictory to those of both authors reviewed above which suggested that the direction of causality is unidirectional from exports to growth as well as unidirectional from FDI to growth. Therefore, for India, over the period, exports and FDI clearly caused economic growth. In the same vein, Asiedu (2002) suggested through her findings that FDI had different impact on different regions; particularly comparing Sub-Sahara Africa (SSA) countries and non-Sub-Sahara African (non-SSA) countries. She compared impacts based on access to relative distinctive features of high returns on investment and levels of infrastructural. She found that the impact of FDI were not reactive to such criteria in SSA countries when compared to more reaction to these thresholds for non-SSA countries. She then concludes that the marginal gains to openness are less successful to SSA countries in relative terms.

In the literature, we discovered another area that has gained attention and has been theoretically reviewed above. This is with regards to accounting for specific industrial or sectoral impacts when evaluating the impact of FDI. This approach evaluates FDI with specific impacts focus rather than generally with a superficial 'neo-liberal' notion that FDI is prevalently beneficial. Fillat and Woerz (2011) considering country and

industry heterogeneity among 35 OECD countries, Eastern Europe and Asia over the period of 1987-2002, conducted an examination of sectoral FDI on productivity growth, while they controlled for the effect of developmental stages. They found that FDI has a much-pronounced impact on economic growth for emerging economies, which includes Eastern Europe and Eastern Asian emerging economies. Additionally, these FDI impacts also differed across industries, supporting claims that FDI policies should reflect various industrial abilities across countries. Again, Chakraborty and Nunnenkam (2008) conducted a study on post-reform India and controlled for the impacts of sectoral FDI and causality in a framework of cointegration-model. They found that the impacts of FDI were different across the different sectors and that the relationships that exists between FDI and growth varied across the different sectors. For example, they found no evidence of causal relationship between FDI stock and productivity in the primary sector; and an endogenous relationship in the manufacturing sector. Evidence was also found of inter-industry spillovers; one of such flows from services sector to industry sector. With regards to financial markets development, Alfaro et al. (2010), in their paper connecting FDI, financial markets and economic growth, found that countries that have comparatively more developed financial markets generally exhibited positive gains from FDI. They also suggested that analysing FDI impacts in isolation yields results with ambiguity.

Another area of attention is the increasing flow of additional financial resources besides FDI, such as immigrant remittances, from developed countries to developing countries and its potential impact on capital accumulation and economic development in receiving countries. Since remittances from immigrants represent a substantial inflow of financial resources, the role of this financial inflow in economic development is another important issue for research and policy making, albeit not for this study. A more recent study by Comes et al. (2018) examines the impact of FDI and remittances on economic growth using a panel of seven countries from Central Europe and Eastern Europe with a GDP per capita under \$25,000. Their study found a positive impact of both FDI and remittances on GDP, but FDI had a higher influence in all analysed countries.

According to Samad (2009), an investigation of the causal link between FDI and economic growth has both policy and strategic implications for less developed countries (LDCs). FDI and economic growth may have a link in three possible ways:

(1) Causal link may flow from economic growth to FDI (unidirectional). If the causal link flows from economic growth to FDI, it implies that economic growth is a precondition for attracting, absorbing and sustaining FDI. In such instance, the policy implication is that LDCs must strive to develop and grow their economies, rather than chasing after FDI in futility (2) Causal link may flow from FDI to economic growth. Where there exists a unidirectional causality from FDI to economic growth, it lends credence to the view that FDI does not only lead to employment generation and capital formation but also economic growth of host countries. The policy implication in such scenario will mean that corporate rules and regulations of host countries must be addressed and enforced to attract FDI. (3) Causal relation may flow in both ways (bi-directional). If the causal link is bidirectional, it therefore means that economic growth and FDI have reinforcing effects on each other.

In conclusion, the evaluations on the empirical evidence for the impact of FDI on growth, which though appears to be prevalently questionable, have in recent times been supportive to the claim that the FDI-Growth nexus and its impacts are better understood when controlled (or thresholding) for other important pre-determinants of growth and when analysed across different sectors of the economy. This idea is better understood in the following section.

## 2.5. Factors Affecting FDI Spillover Effects in Host Economy

As reviewed in earlier sections, several economic models suggest that the spillover effects of foreign direct investment (FDI) on economic growth may be contingent on some intervening factors in the host economy which determine the host country's absorptive capacity<sup>10</sup>. These factors include: financial development, human capital development, economic freedom, institutional quality, trade openness, infrastructure and so on. This section briefly explains the meaning and implications of these factors for the relationship between FDI and growth.

### 2.5.1. Financial Sector Development

Models by Hermes and Lensink (2003), as well as Alfaro et al. (2004, 2010) predict that the impact of FDI on economic growth is dependent on the development of the

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<sup>10</sup> Absorptive capacity refers to an economy's capacity to absorb the benefits spilled over by FDI. It can also be related to a host institution's ability to value, assimilate and apply new knowledge (Cohen and Levinthal, 1989).

local financial markets (namely credit markets and stock markets) of the host country. According to these studies, well-functioning financial markets enable FDI to promote economic growth through backward linkages, where economic agents in the host country can take advantage of knowledge spillovers from FDI, thereby improving the absorptive capacity of the country with respect to FDI flows. For example, a more developed local financial market will make it easier for credit-constrained entrepreneurs to start their own firms (Alfaro, et al., 2010). In other words, well-functioning financial institutions augment capital accumulation and technological innovation, promoting entrepreneurial activities and hence economic development.

Recent studies also show that financial development is a robust predictor of FDI inflows in developing countries (e.g. Shah, 2016). Baharumshah et al. (2017) also found evidences on the effects of differential growth for three types of foreign capital inflows (FDI, debt inflows and portfolio equity). Their study revealed, among other results, that the positive gains of the three types of capital inflows are only found in countries that already have a level of financial market development beyond a threshold level. Thus, a robust and more active financial sector is crucial for economic progress as hypothesised by earlier studies. See section 2.6 for more detailed review of empirical evidence on the role of financial market development in enhancing the impact of FDI on economic growth, which is a major aspect of the present study.

#### 2.5.2. Human Capital

Human capital and FDI are generally classed among the key drivers of economic growth in both developing and developed countries. While human capital and FDI separately affect growth, they also reinforce each other through complementary effects. Generally, enhanced human resource development increases FDI inflow by making the investment environment attractive to foreign investors. This is done through a direct effect of upgraded skill level of the country's workforce, as well as through indirect effects such as improved socio-political stability and health (Majeed and Ahmad, 2008). On another hand, FDI contributes to human capital development since multinational enterprises (MNEs) by themselves can be active providers of

training and education for skill development, as well as information and technology to host developing countries.

Ultimately, therefore, these complementary effects lead to a robust circle of FDI as well as human capital development where host countries experience continuous inflow of FDI over time (long run) by progressively attracting higher value-added MNEs, and at the same time upgrading the skill contents of pre-existing MNEs and local enterprises.

Many studies have researched the relationship and impact of FDI and human capital on growth. For example, Borensztein et al. (1998) found that there is a strong “complementarity between FDI and the stock of human capital” in terms of the impact on economic growth. They used secondary school enrolment as a proportion of the total population as a measure of human capital development or the importance of education. They show from their study that a higher level of secondary school enrolment and attainment is largely related with greater spillover effects. Therefore, the importance of school enrolment as a precondition for the absorption of the gains of FDI was evident. In fact, they went as far as calculating a threshold for secondary school attainment of 0.52, as the level beyond which the host country would begin to benefit from the spillover effects of FDI. Blonigen and Wang (2005) repeated the process undertaken by Borensztein et al. (1998) using the same sample but distinguished between developing and developed countries. Their results are in line with those of Borensztein et al. (1998) but only for the developing countries. Therefore, Blonigen and Wang (2005) found schooling a significantly important factor in terms of absorptive capacity in the case of developing countries.

However, schooling was found not to be a significant factor of absorptive capacity in the case of developed countries. Li and Liu (2005) also found evidence supporting the importance of schooling for absorptive capacity. On another hand, some researchers did not find schooling to be a significant absorptive capacity factor. For instance, the findings of Carkovic and Levine (2005) are not in support of the claim that more schooling allows better absorption of FDI gains and benefits. Similar results are observed in several other studies, such as Darrat et al. (2005), and Kinoshita and Lu (2006).

Education as a factor of absorptive capacity as portrayed in literature does not explore the issue of quality of education. It will be unreasonable to believe that one



year of education in one country will be equivalent to one year of education in another country. The significance of education does not lie in the number of years of education, but essentially in the quality of the education provided or attained. Failure to take quality of education into consideration could produce results, which are misleading. The problem of researching the effects of quality of education lies in the difficulty of its measurement in the first instance. Some researchers have been studying schooling inputs, such as the ratio student-to-teacher as well as expenditure on schooling, as possible proxies for measuring the quality of education.

Some other studies use a combination of secondary and tertiary institution enrolment as a proportion of total population (e.g. Akinlo, 2004; Ayanwale, 2007). Hanushek and Kimko (2000) in their study proposed using international examination scores as proxies for cognitive ability, reflecting the quality of education. They used their constructed variable to study its influence on economic growth and found that the labour-force quality has a steady, stable and strong relationship with economic growth. Hanushek and Woessmann (2008) confirmed this finding through a more robust study. In addition, human capital has been observed to contribute to growth through different channels, which could be seen as different measures of educational quality. For example, using a Chinese panel data study, Li and Wang (2016) find that basic human capital (i.e. human capital obtained from literacy programs and primary and secondary school education) contributes to growth via the 'capital accumulation channel'. While advanced human capital (i.e. human capital obtained from tertiary education, such as vocational college and postgraduate programs) contributes to growth via the 'productivity channel'. According to Li and Wang (2016), while basic human capital augments production like any other normal factor input, advanced human capital is mostly productive in innovation and technological adaptation. The role of education quality as a factor for absorptive capacity will however not be the focus of this study.

### 2.5.3. Economic Freedom

The economic freedom index is also controlled for by some studies when examining the impact of FDI on economic growth. The economic freedom index is an annual index and ranking by the Wall Street Journal and Heritage Foundation in 1995 as to measure the degree of economic freedom in the nations of the world. It takes scores

countries across many measures such the rule of law (i.e. the degree of a country's legal protection for the rights of private property, non-prevalence of political corruption), government size and spending, fiscal freedom, regulatory efficiency (including labour freedom, monetary freedom and business freedom ), openness of markets (i.e. financial freedom, trade freedom and investment freedom). Ajide and Eregha (2014) examined the relationship between the inflow of FDI and economic freedom in twelve ECOWAS member countries selected on the basis of data availability over a period of 1995-2010. While they found a significant positive impact of financial freedom on FDI inflow, business and property rights freedom created some set back on the ability to attract FDI among those countries. In a similar study for the Middle East and North Africa (MENA) region in comparison with the EU, Caetano and Caleiro (2009) found that the extent of FDI inflows depend on the level of economic freedom, especially measures of transparency and corruption. Therefore, it will be beneficial for counties to improve the situation with corruption and level of transparency. In fact, many low-income developing countries suffer from restricted business freedom, flagrant abuses of copyrights, patent and franchise rights, political instability and risks as well as limited regulatory and financial architecture and as such their ability to attract and sustain FDI is severely constrained as would any growth benefits that are attributable to FDI.

#### 2.5.4. Trade Openness

Trade openness is another factor that can also play a significant role in the facilitation of the spillover of FDI gains to the host nation. There is the hypothesis that trade openness and FDI can be balancing for economic growth, and that economies that promotes more open trade policies, particularly policies on export promotion, stand a better chance to benefit from the gains of FDI and its spillovers. Balasubramanyam et al. (1996) investigated the effect of inward FDI on economic growth but focused on the role of the trade regime. The results showed that the impact of FDI on economic growth is much stronger during an export-promotion trade regime rather than an import-substitution trade regime. Makki and Somwaru (2004) found that trade openness enables the spillover of FDI benefits to occur. On another hand, Carkovic and Levine (2005) failed to find a robust significant role for trade openness as a factor of absorptive capacity. Similarly, in a recent study, Mohamad and Bani (2017) investigates the impact of high FDI inflows and

absorptive capacity on technological innovations in 39 developing economies using panel data from 1997-2014. Their observation was that while FDI inflows induce technological innovation in the country with an adequate level of absorptive capacity, trade openness is not significant in determining the level of technological innovations for the sample countries. With respect to causal linkages, Seyoum et al. (2014) used a balanced panel data for 25 sub-Saharan African countries over the period of 1977-2009 to examine the causal relationship between FDI and trade openness for the region and found a bidirectional causal relationship between FDI and trade openness among the sub-Saharan countries. Their result suggests that the promotion and attraction of FDI in SSA countries could expand their productive and export capacity and hence address supply-side constraints. This means that FDI could have positive multiplier effects on trade.

#### 2.5.5. Institutional Quality

Institutional quality is the fifth factor, which has recently emerged in the literature as one of the factors of absorptive capacity. It has increasingly become an important variable in growth regression functions and therefore, it is hypothesized by some researchers as having the capability to act as a facilitating factor for FDI spillovers. A strong institutional set (such as the efficient legal systems, political stability, democratic accountability and reduced bureaucracy) in the host nation/country would permit stronger linkages and connections between local firms and the foreign capital; hence, it would possibly increase the prospect of a spillover effect. Institutional quality has been examined as a factor of absorptive capacity in studies that generally examined the impact of financial openness such as Kose et al. (2009), Bekaert et al. (2010) and others that examined the impact of foreign R&D on the economy, such as Seck (2009) and Coe et al. (2009). All of these studies, with the exception of Kose et al. (2009) found that institutional quality is a facilitating factor. Kose et al. (2009) found that a higher level of institutional quality is linked with a lower FDI impact. They interpreted their findings by arguing that with high institutional quality, even FDI is not very significant to Total Factor Productivity (TFP). With respect to developing countries, Cleeve (2012) found that institutional factors are important for attracting FDI to sub-Saharan Africa (SSA) countries, arguing that since FDI flows to Africa is highly sensitive to economic and political

risks, policies to improve the institutional environment could significantly improve a country's ability to attract more FDI.

#### 2.5.6. Infrastructure Development

Good infrastructure will reduce operating costs, facilitates production, and thereby stimulate FDI (Wheeler and Mody, 1992). Infrastructure leads to an increase in the productivity of investments and thereby lead to economic growth (Asiedu, 2002). In the literature, infrastructure development has often been measured by the number of telephones per 1,000 population (e.g. Asiedu, 2002). However, with the rising use of mobile phones, the amount of mobile phone subscriptions relative to the population is now an acceptable measure. Other measures that has been used in the literature include electric power transmission or consumption (e.g. Ayanwale, 2007), transport infrastructure (e.g. Pradhan et al., 2013; Bakar, 2012) and gross fixed capital formation (e.g. Adi et al, 2015).

Some studies have examined the mediating role of infrastructure development on the relationship between FDI and growth, while others examine the linkages between infrastructure, FDI and growth. Nourzad et al (2014) examined the possible interaction between FDI and the host country's infrastructure base using a panel comprising 46 countries and 5-year averages over the period of 1980–2000. They base their empirical assessment on the hypothesis that the effect of FDI on real per capita income is dependent at least in part, on the size of infrastructure in the host country, using three types of infrastructure capital: power generation, telecommunication, and network of roads and highways. Their results showed that the size of the host country's infrastructure base helps in improving the marginal effect of FDI on real income. Asiedu (2002) also analysed the determinants of FDI in developing countries and examined why countries in sub-Saharan Africa have been relatively unsuccessful in the attraction of FDI despite policy reforms. Among other factors, her study showed that infrastructure (as measured by number of telephone lines per 1000 population) promotes FDI to non-SSA countries but has no effect on FDI to SSA. This finding confirms those of Cleeve (2012) admitting that FDI flows to Africa is highly constrained by political and institutional impediments, of which poor infrastructure is one.

By contrast, FDI flows to some South East Asian countries and its impact on growth seem to be driven by the rapid rate of infrastructural development. For example, Pradhan et al. (2013) examined the long run relationship between transport infrastructure, FDI and economic growth in India, and found evidence of a bidirectional causality between all three variables.

Their study thus concluded that in order to generate additional FDI and economic growth, transport infrastructure development is a condition necessary to foster a faster economic growth, while attracting more FDI can also foster transport infrastructure development and higher economic growth. In a Similar vein, maintaining high economic growth can fast-track both FDI inflows and rapid transport infrastructural development in India. Bakar (2012) also found that infrastructure has a positive and significant effect on FDI inflows to Malaysia as do other variables such as human capital, market size and trade openness.

## 2.6. FDI, Growth and Financial Development: Assessment of Empirical Evidence

Given that the empirical evidence on the FDI and economic growth nexus is unclear, the interaction between financial markets and economic growth itself has been examined quite extensively. Providing evidence at the country level, King and Levine (1993a&b) and Beck et al. (2000a&b) suggested that financial systems are imperative for both productivity growth and development. In analysing the roles of the different types of financial institutions, Levine and Zervos (1998) showed that stock markets and banks offer different services, but both stock market liquidity and banking sector development positively impact and predict growth, productivity improvements and capital accumulation. Rajan and Zingales (1998), at the industry level, found that the level of financial development reduces the cost of external finance to firms, and is thereby growth promoting. In a Combination of industry and country level data, Wurgler (2000) showed that even if financial development does not lead to higher investment levels; it seemed to distribute the existing investments more efficiently and hence leads to economic growth.

In recognition of the obvious role of financial markets, many studies on FDI, howbeit not too extensive, seem to have increasingly paid attention to this area since the past decade. Among such studies include Alfaro et al. (2003, 2004, 2010), Omran and Bolbol (2003), Chee and Nair (2010), Azman-Saini et al. (2010), Soumare and Tchana (2011), and more recently Baharumshah et al. (2017), Alzaidy et al. (2017)

and Bahri et al. (2017), among others. Using cross-country data, Alfaro et al. (2003, 2004) found that well developed and functional financial markets allow for significant gains from FDI, whereas FDI alone plays an ambiguous role in enhancing growth and contributing to development.

Using realistic parameter values, Alfaro et al. (2010) also reached a similar conclusion that a rise in the share of FDI stock leads to higher additional growth in countries that are financially developed comparative to financially under-developed countries. Using data from Arab Countries, Omran and Bolbol (2003) also provide support to the notion that the positive impact of FDI on growth depends on the host country's absorptive capacities. They found that Arab FDI would have a positive influence on growth if interacted with financial variables at a certain threshold level of development. Omran and Bolbol (2003) checked whether FDI on itself could contribute to financial development and, in doing so; improve its chances of growth stimulation. This check was carried out using pairwise Granger Causality tests, which were conducted between FDI and the four indicators of financial development. Their result showed that in reform countries, FDI had the ability to Granger cause financial development.

Azman-Saini et al. (2010) found new evidence to suggest that the positive impact of FDI on growth takes effect only after financial market development has reached and exceed a threshold level. Otherwise, the benefit of FDI is non-existent. It is therefore important to recognize that the spillover effects of FDI for the host economy might crucially depend on the extent of the development of domestic financial markets. For example, to take advantage of the new knowledge, local firms need to adjust their business activities and plans and, more generally, re-organise their structure, hire new managers and skilled labour and buy new machines. Although, using internal financing, some domestic firms might be able to fund new requirements; the greater the gap between their technological-knowledge and their current practices and new technologies, the greater the need for external financing.

Bahri et al. (2017) also investigates the effects of financial development in enabling FDI to promote economic growth using a sample of 65 developing countries from 2009-2015, with system GMM estimation technique. They rather used a composite index measure of financial development based on three indicators, including domestic credit to private sector, liquid liabilities and private credit by banks. Their

results show that the financial development index contributes positively and higher than each financial development proxy in influencing the effects of FDI on economic growth. However, they found that FDI has a negative effect in the group of countries with low level of financial development.

Similarly, Alzaidy et al. (2017) investigate the impact of FDI and financial development on economic growth in Malaysia over the period 1975-2014 and found that financial development plays an important role in mediating the impact of FDI on economic growth, implying that well-developed financial markets facilitate FDI spillovers and hence yield economic growth. Thus, both Bahri et al. (2017) and Alzaidy et al. (2017) support earlier studies that show that financial development serves as a form of absorptive capacity that enable the positive growth effects of FDI in the recipient countries.

Notwithstanding this rather obvious role of financial markets, many studies on FDI seem to have neglected the fact that even in those countries with developed financial markets, there are still potential skills shortages, knowledge and infrastructure in the host countries. For instance, Borensztein et al. (1998) used a dataset of FDI flows from both industrialized and developing countries and showed that, FDI allows for higher growth and for technology transfer. However, there is a possibility of higher productivity only when the host country has a minimum threshold of human capital stock. In the same manner, Xu (2000), used data on US multinational corporations (MNCs), and found that a country needs to attain a minimum human capital threshold level in order to benefit from technology transfer of US MNCs, and that most of the less developed countries (LDCs) do not meet this threshold level.

In addition, the World Bank's (2001) edition of global development finance talks about the importance of 'absorptive capacities' and the success of FDI. The evidence shows that some countries with low absorptive capacities, such as Venezuela, Morocco and Uruguay failed to gain from FDI spillovers, whereas Taiwan and Malaysia did well with their high absorptive capacities. Absorptive capacities here include institutional stability, human capital, macroeconomic management, and infrastructure; financial markets were not mentioned. While the study by Alfaro et al. (2004) made significant attempts at testing the effects of these

other absorptive capacities other than financial development indicators<sup>11</sup>, the paper by Omran and Bolbol (2003) largely ignored the effects of these variables in modelling the association between FDI and growth through financial linkages. Rather, they included only variables such as government expenditure, openness and consumer price index. These variables alone do not entirely capture the absorptive capacities described by the World Bank's (2001) publication and thus casts doubt on the reliability and robustness of the results of the study by Omran and Bolbol (2003).

While the available empirical evidence on FDI and economic growth is somewhat unclear, the connection between financial markets and growth itself has been widely examined; and has come to a more positive conclusion in the sense that well developed and functional financial markets support economic growth. The theoretical framework seems well established in the available literature, with supporting evidence at the country level as conveyed in empirical studies like those of King and Levine (1993a&b) and Beck et al. (2000a&b) as well as at the industry level (e.g. Rajan and Zingales, 1998).

## 2.7. Theoretical Framework on FDI, Growth and Financial Development

The notion that FDI has a positive correlation with economic growth is positioned within growth theories that accentuates the role of improved technology, efficiency and productivity in facilitating growth (Lim, 2001). FDI's potential contribution to growth is dependent mainly and strictly on the circumstances of individual recipient countries. Some basic conditions in a host country are needed to facilitate the spillover effects.

The effect FDI has on economic growth is analysed in the standard growth accounting framework/theory. The basic assumption is that capital stock consists of two capital components, which are domestic capital stock and foreign owned capital stock. So...

$$K_t = K_{dt} + K_{ft} \tag{1}$$

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<sup>11</sup> Macroeconomic management is captured by inflation and trade openness, human capital is measured by average years of schooling, while institutional stability is measured by data on expropriation, corruption, rule of law and bureaucratic quality.



This research adopts an augmented Solow production function as in (Solow, 1956) which makes output a function of capital stock, human capital, labour and productivity (see Mankiw et al., 1992). Nevertheless, domestic capital stock and foreign owned capital stock are specified separately in a Cobb-Douglas production function (Cobb and Douglas, 1928).

$$Y_{it} = A_{it} K_{dit}^{\alpha} K_{fit}^{\lambda} L_{it}^{\beta} H_{dit}^{\gamma} \quad (2)$$

Where  $Y$  as the dependent variable represents the flow of output.  $K_{dt}K_{ft}$  represents the domestic capital stock and foreign owned capital stocks respectively.  $L$  represents labour;  $H$  represents human skills capital stock while  $A$  represents the total factor productivity, which explains the output growth that is not accounted for by the growth in factors of production specified.

When we take logs and differentiate equation 2 with respect to time, we obtain the familiar growth equation:

$$y_{it} = a_{it} + \alpha k_{dit} + \lambda k_{fit} + \beta l_{it} + \gamma h_{dit} \quad (3)$$

Where the lower case letters represent the growth rates of output, domestic capital stock, foreign capital stock, labour and human capital while  $\alpha, \lambda, \beta, \text{ and } \gamma$  represents the elasticity of output, domestic capital stock, foreign capital stock, labour and human skill capital, respectively.

In a perfect world where there is perfect competition and constant returns to scale, these elasticity coefficients may be construed as being separate factor shares in total output. Equation 3 is a fundamental growth accounting equation, which separates output growth rate into the growth rates of total factor productivity plus a weighted sum of the growth rates of human capital stock, capital stocks, and the growth rate of labour. In theory,  $\alpha, \beta, \text{ and } \gamma$  are supposed to be positive while the sign of  $\lambda$  would depend on the relative strength of competition and the effects of linkages and other externalities arising from FDI in the development process as highlighted in the previous sections.

Following the established practice in the literature,  $K_d$  and  $K_f$  are proxied by domestic investment to GDP ratio ( $I_d$ ) and FDI to GDP ratio ( $I_f$ ), respectively given the problems related with measurement of capital stock. The use of rate of investment is hinged on the assumption of a steady state situation or a linearization around a steady state.

The last form of equation (3) therefore is:

$$y_{it} = a_i + \alpha I_{dit} + \lambda I_{fit} + \gamma h_{it} + \varepsilon_{it} \quad (4)$$

Where  $\varepsilon_{it}$  is an error term.

Equation 4 therefore is the basis for most empirical model estimation relating economic growth and FDI (e.g. Ayanwale, 2007)

#### *Introduction of Financial Development to the Cobb-Douglas Production Function*

Most studies examining the role of financial markets on the FDI-growth linkage use the Cobb Douglas Production function to show how improvements in the financial markets will influence the effects of FDI on domestic production (e.g. Alfaro et al., 2003, 2004, 2010; Omran and Bolbol, 2003; Miller, 2008). They also show that the model, which is widely used in theoretical and applied research, provides a benchmark for the empirical analysis.

As argued by Omran and Bolbol (2003), FDI appears to mostly affect investment efficiency and since this effect is dependent on the level of financial development, this relationship can be modelled by having the interaction between FDI and financial development as a determinant factor of investment efficiency or total factor productivity (TFP). The use of Cobb-Douglas production function can modify the conventional FDI-growth model above and specify:

$$Y = A(FS * FI)L^\alpha K^\beta \quad (5)$$

Where  $Y$  represents output,  $A$  represents TFP,  $FS$  represents stock of FDI,  $FI$  represents financial development variable,  $L$  represents labour,  $K$  represents capital, and  $\alpha$  and  $\beta$  are share of labour and capital, respectively. When we take the log differential of equation (5), we get:

$$\dot{Y} = A'(FS * dFI + FI * dFS) / A + \alpha \dot{L} + \beta \dot{K} \quad (6)$$

Where  $\dot{Y}$  represents growth rate and  $A'$  represents the derivative of  $A$  with respect to the interaction term  $FS * FI$ . Keeping in mind that  $dFS = FDI$  and that  $A'Y / A = \lambda$  is the marginal product of TFP due to changes in the interaction term, equation (6) can be expressed as:

$$\dot{Y} = \lambda * FS * dFI / Y + \lambda * FI * FDI / Y + \alpha \dot{L} + \beta \dot{K} \quad (7)$$

The term,  $FI * FDI / Y$ , in equation (7) represents the interaction between the financial development variable and the ratios of FDI. Again, equation (7) can be converted from a growth accounting equation to a growth equation in good functional form.

We can do this if  $\dot{K}$  is proxied by the investment ratio ( $I / GDP$ ).  $\lambda * FS * dFI / Y$  is chosen as the constant term and  $PCYG$  is credibly replaced for the growth in  $Y / L$ . Taking initial per-capita income ( $IPCY$ ),  $FI$ , and the  $FDI$  and investment ratios as the components in the vector  $\mathbf{R}$  that usually determines growth, equation (4) becomes:

$$PCYG = a + b_{11} IPCY + b_{12} FDI / GDP + b_{13} I / GDP + b_{14} FI + b_2 FI * FDI / GDP + b_3 C + \varepsilon \quad (8)$$

In the present study, equation (8) is estimated for the different succeeding models, representing in the process; all the vectors of its independent variables. The full results can be found in the empirical chapters.

## 2.8. Problems of Empirical Evaluation of FDI-Growth-Finance Relationship

### 2.8.1. An Assessment of the Cobb-Douglas Production Function

The theoretical models incorporating financial development to the Cobb-Douglas function show that development of financial markets leads to an increase in output by increasing the marginal product of FDI (e.g. Alfaro et al., 2003; Omran and Bolbol, 2003). In other words, financial development seems to improve the investment efficiency of FDI flows in the host economy. However, as mentioned earlier, in the absence of other absorptive capacities such as infrastructure, human capital and institutional stability, financial development alone will not lead to investment efficiency. Thus, the use of the Cobb Douglas Production Function is

flawed because the two key factors of production upon which the model is built, domestic labour and foreign capital stock alone will not guarantee the consolidation of the gains from FDI.

Moreover, one of the assumptions of the Cobb-Douglas model is that production is perfectly competitive, while technology is based on constant returns to scale (Alfaro et al., 2003). This means that the Cobb-Douglas models have a behavioural interpretation. Thus, since the model is not internally consistent, its parameters may not be describing a meaningful economic relationship in the real world (Miller, 2008). Macroeconomic theory shows that aggregate production function in any economy has economic content only if very stringent set of conditions are attained (such as perfect competition, constant returns to scale, assumption of small open economy with no adjustment costs, two sectors in the economy, etc). Given that these conditions are not fulfilled in real economies, it is most likely that the good fit perceived in empirical research studies of total production function is the result of a statistical artefact (Miller, 2008). Total production functions rely greatly on the use of factor elasticities and marginal products. Both of these are microeconomic theories that macroeconomists have found to be very useful as it simplifies their models. While it is normal practice to estimate these parameters for labour and capital in the larger economy, it is not completely clear as to whether these measurements capture a relationship that is economically significant.

#### 2.8.2. Problem of Empirical Estimation Using Cobb-Douglas

Apart from the limitations of the Cobb-Douglas production function, the empirical estimation methods used by these two notable studies - Alfaro et al. (2004) and Omran and Bolbol (2003) appear to be fraught with several econometric issues. First, both studies did not seem to address the collinearity issues commonly associated with the OLS method, which they use. It is possible that the time series data collected across countries may have been subject to collinearity and these could raise questions concerning the statistical robustness of the estimates presented by both studies. In addition, the studies should have employed the Generalised Maximum Entropy (GME) model in addition to the OLS method to estimate the production functions or perhaps as part of the robustness tests. Golan, Judge and Miller (1996) show that the use of the GME model provides meaningful

estimates; especially when data are subject to collinearity because it does not make use of traditional inversion methods.

Furthermore, in terms of the estimation, more precision is achieved when using GME compared to other estimation methodologies. Another possible way in which these studies can detect collinearity is the use of the eigensystem. Fraser (2002) shows that eigenvalues are used to formulate condition indexes that provide information regarding the strength of collinearity. Eigenvalues and eigenvectors are used to formulate variance decomposition proportions that are useful in identifying which of the regressors are collinear.

Second, in multivariate cross-country regressions, data collected may contain a mix of stationary variables and non-stationary variables. No mention was made by the studies on whether unit root tests were carried out. In the presence of non-stationary variables, standard OLS estimates are doubtful because they may lead to spurious regressions. Felipe and Holz (2001) found that spuriousness makes only a slight contribution to the high  $R^2$  in regressions that make use of a fitted Cobb-Douglas. Using unit root tests like ADF and Phillip-Perron tests should help ascertain the stationarity properties of the variables.

Third, the issue of endogeneity is crucial in multivariate regressions. Endogeneity can arise because of error of measurement, auto-regression with correlated errors, simultaneity and omitted variables. Endogeneity can either arise when there is a loop of causality between the dependent and independent variable; or when one uncontrolled variable causes both the independent and dependent variable to change. It is thus likely that where both the efficiency of financial markets and the magnitude of FDI increase with high growth rates, the effects of each of the two variables as well as their interaction on growth would be overstated. While Omran and Bolbol (2003) show the direction of causality between FDI and financial development, Alfaro et al. (2004) make use of instrumental variables that are not subject to reverse causality to check for endogeneity.

### 2.8.3. Problems with Measuring Financial Market Development

By and large, well-developed financial markets amplify the positive impact of FDI on economic growth as reviewed earlier. In other words, economic agents, namely entrepreneurs, can take advantage of knowledge spillovers from FDI through the

availability of external finance, thus magnifying the output effects of FDI. The term “financial market development” is a term that is generally used to refer to the development of both credit markets (banks) and stock markets. However, it does appear that the premise upon which some studies such as Omran and Bolbol (2003) have made their claims may have been biased towards a bank-based type of financial development as the paper also claims that Arab countries have a financial system that is predominantly bank-based. It is important to note that it is not just the availability of loans that matter, but also well-functioning stock markets. Alfaro et al. (2004) claim that, “well-functioning stock markets, by increasing the spectrum of sources of finance for entrepreneurs, play an important role in creating linkages between domestic and foreign investors” (pp. 92). If this assertion were correct, then one would expect the literature on the financial markets channel of the FDI–growth nexus to distinguish between the relative contributions of “bank-based” and “market-based” systems of financial development towards consolidating the gains of FDI.

Levine and Zervos (1998) analysed the role of different types of financial institutions. Their findings showed that banks and stock markets provide different kinds of services, but both banking development and stock market liquidity positively predict capital accumulation, growth, and productivity improvements.

Thus, given that all countries have not attained the same level of financial development (some have only developed banking systems, while others have both developed banking systems and well-functioning stock markets); it is out of place for any study to generalize that the impact of financial development on the linkages between FDI and growth is positive for all countries (as in Alfaro et al., 2004), without conducting a sample split between developing and developed countries or perhaps countries with developed banking systems and those with both developed credit markets and stock markets. Thus, there is some ambiguity in combining samples of countries whose financial development is mainly bank-based with those whose development is driven by the stock markets. Alfaro et al. (2004) and Omran and Bolbol (2003) selected their data based on factors such as whether the countries in the sample had a functional stock market or not and whether the countries’ financial system is dependent solely on banking system.

In assessing the role of financial markets on the linkages between FDI and growth, it is also very difficult to construct accurately the measures with which to compare financial services data for a wide cross-section of countries over many decades.

Studies such as King and Levine (1993a), Levine and Zervos (1998) and Levine et al. (2000) all attempted to construct numerous financial market series, spanning from the stock market to the volume of lending in an economy. Because different variables (e.g. bank assets, aggregate savings credit and output) are interpreted or defined differently by different organisations and countries, pooling the dataset and unifying them across board could distort the accuracy of the model and hence the reliability of the estimates obtained. Moreover, differences in economic model and market development across countries even within each division of developed and developing countries could have an impact on the aggregate result of a cross-country model. In addition, the use of proxy variables rather than actual variables could also misrepresent or change the economic meaning of the model.

## 2.9. Chapter Summary

This chapter has examined both theoretical and empirical literature on the linkages between FDI and economic growth as well as the role of absorptive capacities, particularly financial development in enhancing the benefits of FDI to the host country. FDI has continued to gain increasing acceptance over the years as an important strategy for economic growth particularly in developing countries. Statistics show that the US and other major economies of the World (e.g. Germany, Japan, France, Canada, Netherlands, Spain, UK, Italy) are the top providers of FDI, while the Developing Asia (particularly China and India), Europe, Latin America and the Caribbean and North America are major FDI hosts.

The chapter focused more extensively on the causality between FDI and growth, factors affecting the spillover effects of FDI on the host economy as well as the role of financial development on linkages. Most studies admit that FDI is a great source of growth capital, knowledge and technology transfers to the host economy. However, many studies found that for the gains of FDI to be appropriated, the host country needs to develop absorptive capacities, which include improved financial markets, better human capital, greater economic freedom, more trade openness, increased transparency, institutional quality and better infrastructure amongst other enabling factors. Given that the empirical evidence on FDI and economic growth is equivocal, the connection between financial markets and growth itself has been widely researched and has arrived at more positive conclusions (that well developed and functional financial markets support economic growth). Several influential

papers (e.g. Alfaro et al., 2004 and Omran and Bolbol, 2003) show that financial institutions provide access to finance to local entrepreneurs who want to take advantage of the benefits of FDI, and that well developed financial markets accelerate the process of capital accumulation and output growth.

This chapter has also provided a theoretical framework based on the Cobb-Douglas production function for modelling the relationship between FDI and economic growth as well as the financial markets channel through which the FDI impacts on growth. The major strengths of Cobb-Douglas are that it is easy to use and it is apparently a good empirical fit across many data sets. Regrettably, the Cobb-Douglas still fits the data well in instances where some of its central assumptions are not satisfied. For example, the model relies heavily on factor elasticities and marginal products, both of which are microeconomic concepts, which do not provide any meaningful economic relationship at the aggregate level. Moreover, the Cobb-Douglas model is fraught with several estimation issues, particularly the issue of collinearity and unit roots. In estimating the relationships between FDI, growth and financial development, there are also substantial difficulties in measuring financial development given that there are differences in the degree to which economies have developed their banking and stock market systems, with majority of developing economies classified as more bank-based than market-based economies. Differences in measurement parameters across levels of financial development will alter the economic meaning of the models in cross sectional study.



## Chapter 3

### Foreign Direct Investment, Financial Development and Economic Growth in Nigeria

#### 3.1. Introduction

The previous chapter examined the general literature on FDI, financial development and economic growth. This chapter narrows down to the Nigerian context. Given Nigeria's natural resource base and large market size, Nigeria qualifies to be a major FDI recipient in Africa and indeed is one of the top three foremost African economies that has steadily received FDI over the years (Ayanwale, 2007). However, as noted in the problem statement in chapter 1, the level of FDI attracted by Nigeria is modest when compared to other emerging market economies. More so, the empirical linkage between FDI and economic growth is still vague, notwithstanding numerous studies that have studied the influence of FDI on economic growth with different outcomes (e.g. Adelegan 2000; Akinlo, 2004; Anyanwale, 2007; Egbo and Onwumere, 2011; Ehimare, 2011; Awolusi, 2012; Onakoya, 2012; Umoh et al., 2012; Eravwoke and Eshanake, 2012; Olusanya, 2013). In addition, studies on the determinants of FDI in Nigeria vary in their submissions; with some pointing to market size, availability of natural resources, trade openness, infrastructural development, return on investment and political risk. While others look at macroeconomic issues (like GDP growth, inflation, exchange rate), cost of labour, human capital and institutional quality, among other factors (e.g. Dinda, 2008; Obida and Abu, 2010; Ebiringa and Emeh, 2013; Maghori, 2014; Offiong and Atsu, 2014; Agwu, 2014; Ojong et al, 2015; Adi et al, 2015).

Something worthy of note in the FDI-growth nexus in Nigeria is the fact that over 60% of FDI flows to Nigeria has been concentrated within the extractive (oil) sector/industry. Hence, there seems to be evidence that natural resources have a major influence on Nigeria's economic growth (Ayanwale, 2007). This study is primarily concerned with analysing the role of financial development on the linkages between FDI and growth. Only a few studies have been able to consider the causal relationships among financial development, FDI and economic growth in Nigeria (e.g. Nwosa et al., 2011; Saibu, et al., 2011). However, these studies only examine the causal influence of FDI and financial development on economic growth

separately without considering the role played by financial development in shaping the relationship between FDI and economic growth. The current study hopes to fill this gap in literature.

The other sections of this chapter are structured as follows: section 3.2 looks at the background of the Nigerian economy, including the sectoral contribution to GDP growth and recent developments in the Nigerian economy. Section 3.3 examines the determinants of FDI inflows into Nigeria, while section 3.4 looks at the trend analysis of FDI inflows and analysis of FDI inflows by sectors. Section 3.5 examines the literature on the impact of FDI on economic growth in Nigeria, while section 3.6 describes the process of financial development in Nigeria, including financial sector reforms and the financial development indicators. Section 3.7 examines the little evidence on the link between FDI, financial development and economic growth in Nigeria, while section 3.8 examines other factors that drive economic growth in Nigeria besides FDI and financial development. The chapter concludes in section 3.9.

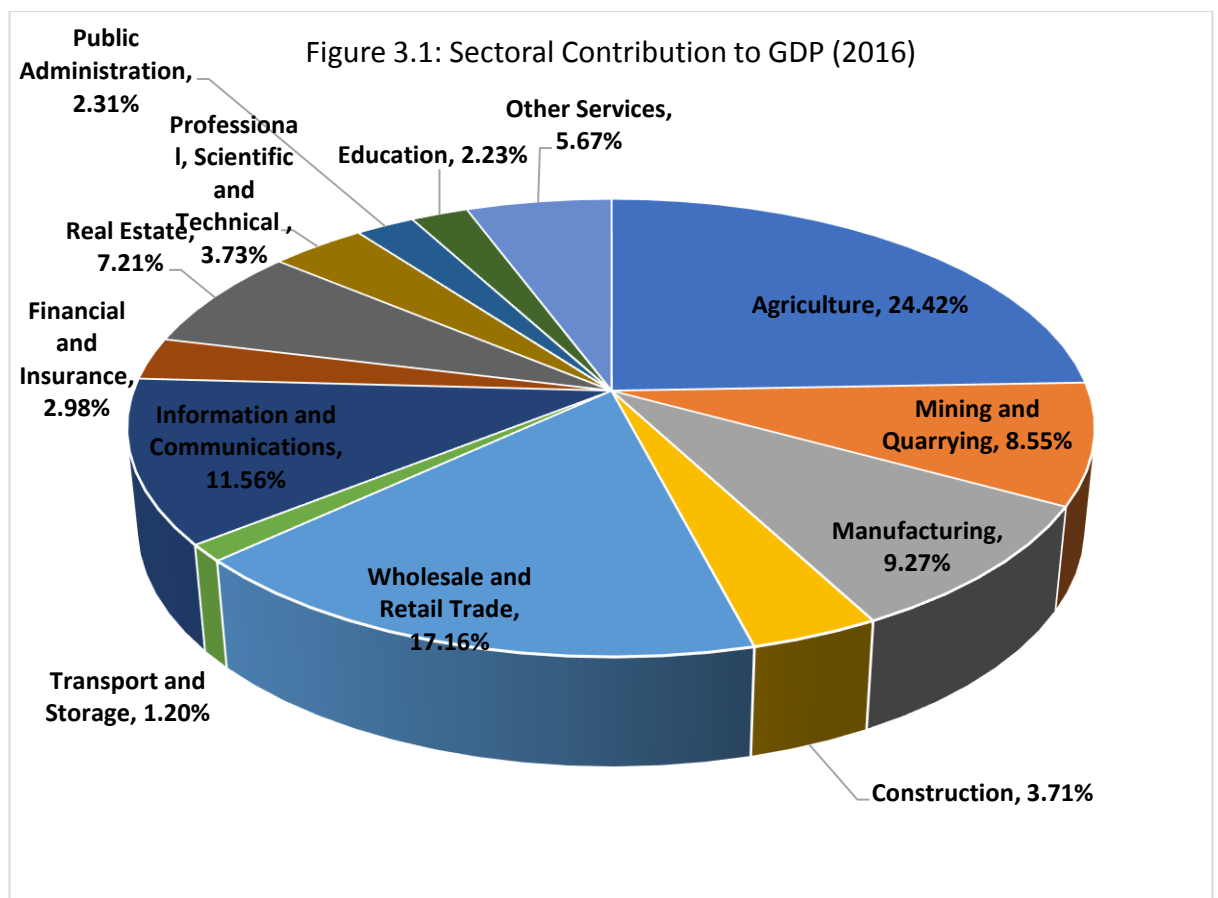
## 3.2. Background of the Nigerian Economy

### 3.2.1. Economic Profile of Nigeria

Nigeria is profiled as the biggest single geographical entity in West Africa with a growing population of over 182 million people and boasts as the largest country on the African continent. Nigeria is endowed with abundant mineral and natural resources. Nigeria is the largest oil exporter in Africa and has the largest natural gas reserves on the continent. Though petroleum production accounts for only 8.4% of Nigeria's GDP, the oil sector contributes over 90% of foreign exchange earnings and 70% of government revenues in Nigeria (World Bank, 2017a). Nigeria is also endowed with fertile agricultural land and numerous mineral resources, thus making the economy agrarian and primary in nature. It is worth noting that before the oil boom in the 1970s, Nigeria depended largely on primary export commodities such as cocoa, oil palm, cotton, rubber and groundnut as major revenue earners. This has implications for policy as it signifies a growth path that supports the Lewisian model of structural change (Lewis, 1956). The Lewis dual-sector model of economic growth, named after Arthur Lewis, winner of Noble prize in Economics, proposed that every economy initially comprises of two sectors. The first being the primary sector, which is often agricultural and labour-intensive while the other is a capital

intensive industrial sector. His theory postulates that in the beginning, the rapid agricultural output increases spur growth that leads to a surplus; which is the leftover of what is not locally consumed. These surpluses are then exported and/or fed into manufacturing/industrial sector as capital formation. With more growth, this process then accelerates and eventually benefits from economies of scale. Industrial output increases faster than primary produce leading to a country being classed as Industrial. Lewis ignored the service sector as he felt distributive activities gain eminence only after a country has reached high economic growth level.

Furthermore, available statistics in Nigeria show that approximately 60% of the work force initially depended on farming for a living prior to the discovery of petroleum in commercial quantities (CBN, 2000). Agriculture therefore accounted for 60% of GDP and a significant part of export earnings. However, in the 1980s, there was a shift from the monoculture of agriculture to a dependency on petroleum production which also resulted to increased economic growth and a transition from a traditional agricultural economy to a modern industrial economy.



**Source:** National Bureau of Statistics (2017)

In terms of sectoral contribution to GDP, agriculture still accounted for the largest share amounting to 24.42% in 2016 (See figure 3.1). Wholesale and Retail Trade came second and contributed 17.16% in the same period while Information and Communications was the third largest sector and contributed 11.56% to GDP. Other sectors included Manufacturing (9.27%), Mining and Quarrying, including Crude Petroleum and Natural Gas (8.55%), Real Estate (7.21%), Professional, Scientific and Technical Services (3.73%), Construction (3.71%), Finance and Insurance (2.98%), Public Administration (2.31%), Education (2.23%), Transport and Storage (1.20%), and Other Services (5.67%). Overall, more than 75% of contribution to GDP came from industries (22.02%) and services (53.55%) as compared to 24.42% in agriculture showing a significant shift in the economic structure compared to the 1960s and 1970s.

### 3.2.2. Recent Macroeconomic Developments

Since oil prices fell in mid-2014, the growth of the Nigerian economy has been on a downward spiral. Nigeria recorded an economic growth of 2.7% in 2015, which was significantly lower than its growth of 6.3% in 2014 (World Bank, 2017a). Nigeria officially entered recession in the first and second quarter of 2016, with negative GDP growth rates of -0.36% and -2.06% year-on-year in real terms, respectively (National Bureau of Statistics, 2017). This was Nigeria's first full year recession in 25 years (World Bank, 2017a). In the third quarter of 2016, there was a contraction in GDP by 2.2%, because of a significant fall in the country's oil production output, foreign exchange, shortages of power and fuel. Due to falling oil prices, foreign exchange reserves fell from US\$32 billion in January 2015 to US\$25 billion in November 2016 (from a high of US\$53 billion in 2008). This led to a sharp depreciation in the Naira in which it lost almost half of its value against the dollar. In a similar vein, foreign direct investment (FDI) fell sharply from a high of US\$8.9 billion in 2011 to US\$3.1 billion in 2015 (Ministry of Budget and National Planning, 2017). In December 2015, inflation doubled from 9.5% to 18.5% at the end of 2016, mainly because of the combined effect of higher energy prices, currency depreciation, and high cost of inputs (*ibid*). Falling oil revenues increased the Federal Government deficit from N1.2 trillion in 2013 to N1.4 trillion in 2015, with an estimation of N2.2 trillion in 2016 (*ibid*). According to World Bank (2017a) estimates, Nigerian economy was projected to grow by about 1% in 2017 and 2.5% in 2018. The projection was based on an expected increase in oil output and an acceleration in the implementation of public and social investment projects by the current Federal

Government. There has been a transformed focus on economic diversification, to promote growth in the private sector and drive job growth; given the recent low growth rate witnessed in the Nigerian economy.

### 3.3. Determinants of FDI flows to Nigeria

The determinants of FDI flows to Nigeria are similar to those factors that determine the flow of FDI to emerging market economies. First, it is important to understand the motives for multinational companies' investment abroad. According to Dunning and Lundan (2008), there are four main categories of motives for FDI:

- (1) **Resource seeking FDI** - aims to extract natural resources for sale in the international market through exportation (Dinda, 2008). Companies in the engaged in oil extraction in Nigeria, Diamond in Botswana and gold in Ghana belong to this category (Agwu, 2014).
- (2) **Market seeking FDI** – aims to attract new markets which are attractive because of their size and/or growth factors.
- (3) **Efficiency seeking FDI** – aims to take advantage of lower labour costs (especially in developing countries or countries with large number of semi-skilled and skilled labour such as China and India) and the quality and efficiency of infrastructure.
- (4) **Strategic-asset seeking FDI** – aims to access research and development, innovation, and advanced technology. FDI flows to developed and transition countries belong to this category (Campos and Kinoshita, 2003).

The factors that determine the flow of FDI to Nigeria are numerous and they range from the size of the market, to availability of resources, trade openness, return on investment, infrastructure development, political risk, macroeconomic stability, human capital and quality of institutions, among other factors. These are discussed below:

**Market Size:** One of the most important factors that determine FDI inflow to a host country is the size of the domestic market. This is because new investment opportunities in countries with large markets (such as Nigeria) tend to be profitable for the foreign investors/firms (Dinda, 2008). Large markets enhance the efficient use of resources and exploitation of economies of scale (Ebiringa and Emeh, 2013). Some measures of market size include the size of the host country's GDP and the

size of the population. With a population of over 184 million people and a GDP of US\$405 billion, Nigeria boasts of the largest consumer market demand in Africa. But the use of absolute GDP and population size have been contested because they do not reflect the income or buying power of the population and as such are poor indicators of market potential for the products of foreign investors (Chakrabarti, 2001). Hence, some studies have used GDP per capita (e.g. Dinda, 2008; Adi et al, 2015) to proxy market size, while some others use stock market capitalisation (e.g. Ebiringa and Emeh, 2013; Ojong et al, 2015) as it tends to reflect the level of economic activities in the host country. The concept of market size is more imperative for market-seeking FDI than resource-seeking FDI.

**Availability of Resources:** Nigeria is one of the most richly endowed countries in Sub-Saharan Africa, with such natural resources as oil and gas, mineral deposits (such as coal, lignite, bitumen, iron-ore, gold, uranium, columbite, limestone, marble etc), good vegetation, and so on. Nigeria's mining industry, is, however, dominated by petroleum production. The country's known oil reserves could last for another 30-40 years (Dinda, 2008). Given the abundance of natural resources in Nigeria combined with a large market size, about 60% of FDI inflows has traditionally been allocated to the extractive industry, particularly to the oil sector (Ayanwale, 2007). The situation is not peculiar to Nigeria, as the African region countries possess large reserves of gold, oil, diamonds, copper, bauxite, platinum, and so on. This has made several African countries such as Angola, Nigeria, South Africa, Ghana, Cote d'Ivoire, Democratic Republic of Congo, Namibia and Botswana hosts to FDI because of this natural resource advantage (Agwu, 2014). Foreign companies engage in vertical FDI in the host country to produce raw materials and/or inputs required for their production processes in their home countries (Dinda, 2008).

**Trade Openness:** Since most investment projects are concentrated on the tradeable sector, a country's degree of openness to international trade should be a key factor in attracting FDI. Openness is usually measured by percentage of (imports and exports) to GDP as in (Ayanwale, 2007). The more open (and less restrictive) an economy is, the easier it is to do business and the more FDI inflow it can attract. More openness indicates more economic linkages and activities with the rest of the world and more open and liberalised economic and trade regime (Ebiringa and Emeh, 2013). Nigeria has had a mix of restrictive and open trade/FDI policies over the years. For example, the Nigerian Enterprises Promotion Decree

(NEPD) and the indigenisation policies of the Federal Government of Nigeria in the early 1970s imposed numerous restrictions on FDI entry as some business activities were considered the exclusive reserve for Nigerian investors; while permitted foreign participation was restricted to 60% of foreign ownership in 1972 following the NEPD and then tightened further to 40% due to the indigenisation policy of 1977 (Ojong et al, 2015).

However, with the structural adjustment program (SAP) introduced from the late 1980s, which emphasized privatisation, market liberalisation and agricultural exports orientation, several trade restrictions were relaxed (*ibid*). By 1995, the Nigerian Investment Promotion Commission Act opened all economic sectors for foreign investors to participate and allowed for 100% foreign ownership in all sectors (except for the petroleum sector where FDI is limited only to joint venture ownerships or production sharing). With the return to democracy in 1999, poverty reduction became the focus of the Nigerian government, and the National Economic Empowerment and Development Strategy (NEEDS) was adopted in 2003. NEEDS made FDI attraction a major focus of the government and gave attention to attracting investment from wealthy Nigerians who lived abroad and from other Africans in Diaspora (Ojong et al., 2015).

**Return on Investment:** FDI will flow to countries that pay a high return on capital. However, identifying an appropriate measure for the return on investment in developing countries is a problem; because of the absence of well-functioning capital markets (Asiedu, 2002). In the case of Nigeria, the capital market was largely undeveloped for most of the period under study, so some studies have used the long-term US interest rate as a proxy for return on investment in Nigeria (e.g. Ekpo, 1995; Ayanwale, 2007). This is because return on investment in the larger part of the world serves as an opportunity cost for prospective investors in Nigeria. These investors can use the ROI rate to compare with what is obtainable in other parts of the world where there are available investment options. Higher return on capital seems to be consistent with a higher GDP per capita and more FDI for the host economy (Asiedu, 2002).

**Infrastructure Development:** Good infrastructural network increases the productivity of investments, reduces operating costs and therefore encourages FDI flows (Wheeler and Mody, 1992; Asiedu, 2002). Infrastructure development is often

measured with the availability and reliability of telecommunication facilities, road and rail networks and power transmission. As information on reliability of infrastructure is often limited or unavailable, most studies use measures of availability only, such as number of telephone lines per 1,000 population (Asiedu, 2002) or amount of mobile phone subscriptions (but this data will only be available from 2000s), and electric power consumption per capita (Ayanwale, 2007). Some recent studies use gross fixed capital investment as measure of infrastructure development as defined by the World Bank (e.g. Adi et al, 2015). The poor infrastructure development of Nigeria can partly explain the inadequate flow of FDI to Nigeria over the years. The cost of doing business in Nigeria has been exceptionally high due to intermittent power supply, high energy costs and poor road networks. According to the 2017 Doing Business Report (World Bank, 2017b), Nigeria is currently ranked 180 out of 190 economies in the world for getting electricity. Given these conditions, business and transportation costs are high and access to markets is limited. In addition to physical infrastructure, financial infrastructure is also important for FDI flows. A well-developed financial market enables an economy to fully absorb the benefits of FDI as reviewed in chapter two.

***Political/Country Risk:*** It is widely acknowledged that economic growth is hindered when an economy is politically unstable. Political stability creates a climate of confidence for investors, while on the other hand, political instability (whether real or perceived) deters investors as it creates uncertainties and increases risks and hence cost of doing business in the country (Adi et al, 2015). The probability of a change in government is usually used as a proxy for political risk while political violence is measured by the sum of frequency of political assassinations, politically motivated strikes and violent riots (Asiedu, 2002; Ayanwale, 2007). Asiedu (2002) used average number of revolutions and assassinations to measure political instability. Ayanwale (2007) used the number of coup d'etat to measure political stability in Nigeria. Adi et al (2015) used a combination of two political freedom indexes (civil liberties and political rights) as compiled by Freedom House to assess the effect political risk had on FDI in Nigeria. The general perception of risk in Nigeria and Africa at large is still high and this continues to hamper FDI inflows (Agwu, 2014).

***Macroeconomic Stability:*** Macroeconomic stability is crucial for attracting FDI into a country. This is because macroeconomic instability increases business risks and



uncertainty. For example, macroeconomic uncertainty means higher costs for the companies, because they incur additional expenditures to ensure they protect themselves against risks and even in the establishment and enforcement of contracts (Ebiringa and Emeh, 2013). Macroeconomic stability is usually measured by the domestic inflation rate and exchange rate. A country with a track record of low inflation (i.e. price stability) and prudent fiscal management signals to investors about the commitment and reliability of the government (Adi et al, 2015). Furthermore, a country that has a weak currency comparative to other major currencies will not attract foreign investors. This is because a company's revenue streams (including repatriated profits) are likely to face an exchange rate risk (Ebiringa and Emeh, 2013), which may shrink profits or earnings significantly. Another useful indicator of economic stability is GDP growth rate. The higher the growth rate of a country's GDP, the easier it is to attract foreign investments, because it signals a country's ability to generate sustained wealth and prosperity. As noted earlier in section 3.2.2, since Nigeria entered recession in 2016 due to falling oil prices, the currency has depreciated markedly (losing almost half of its value) and inflation rate has risen (to double digit figures), the combined effect of which has led to a drastic reduction in FDI inflows by more than 65% between 2011 and 2015. This is a perfect example of how macroeconomic instability serves as a deterrent to FDI flows.

**Human Capital:** In making investment decisions, foreign investors are likely to consider the availability, quality and cost of labour in the host country. Countries that have high wages, or less skilled labour force are more likely to find it difficult to attract FDI (Adi et al, 2015). As noted in chapter 2, a more educated workforce can learn and adopt new technologies quicker and the cost incurred in training local work force will be minimal for investing firms. Ayanwale (2007) proxied the importance of education to economic growth in Nigeria by the ratio of secondary and tertiary institution enrolment in the population and found that human capital in Nigeria is not FDI inducing as Nigeria has been reported to have a low level of existing human capital. This finding may be associated with the literature on efficiency-seeking FDI, which tend to locate only in those countries that are able to supply skilled labour force. However, by contrast, Cleeve et al (2015) assess the role of human capital on FDI inflows to sub-Saharan Africa (SSA) using a panel of over 35 countries (including Nigeria) over 1980-2002 and found that all measures of human capital, including basic education (adult literacy), secondary school enrolment and tertiary

school enrolment were relevant in influencing FDI inflow. However, their study showed that without access to better quality workforce (as proxied by tertiary education), SSA countries will face substantial difficulties in attracting FDI.

***Institutional Quality:*** According to the 2017 Doing Business Report (World Bank, 2017b), Nigeria is currently ranked 169 out of 190 economies in the world for the ease of doing business. Most of the indicators used to compute this ranking are measures of institutional quality, including setting up a business, getting electricity, obtaining construction permits, property registration, obtaining credit, protection of minority investors, tax payments, resolving insolvency, trading across borders and contract enforcements (World Bank, 2017b). The institutional climate is a vital factor because it directly affects business operations (Agwu, 2014). In this regard, several factors can promote or deter investment.

One of these factors is bureaucracy. The complex and time-consuming process of establishing a business may discourage investment efforts. In this area, Nigeria is ranked 138 out 190 countries, which is unsatisfactory. However, between 2011 and 2017, Nigeria had made it easier to set/start up a business by improving online government portals, particularly in both Lagos and Kano, the largest commercial cities in the country (World Bank, 2017b).

A second factor is the ease of getting credit (e.g. for working capital, asset purchase or business expansion). Nigeria's ranking in this area (44 out of 190) appears to be encouraging, implying that businesses, particularly larger ones, are relatively able to get financing compared to other countries ranked after Nigeria.

A third factor is the quality of the judiciary, which is key to the protection of property rights, enforcing contracts and resolving insolvency. The rule of law is commonly used to measure this and is comprised of three indicators: strong court system and sound political institutions; the substance of the law itself and fairness of the judicial system (Campos and Kinoshita, 2003). It is perceived that countries with better legal infrastructure and independent judiciary are able to attract more FDI (Agwu, 2014). Lastly, another important factor, which is very prevalent in Nigeria, is corruption and bribery. Corruption represents an additional cost to business and this deters the inflow of FDI. This is because wherever corruption exists, there is uncertainty, which hinders the flow of FDI (Anyanwu, 2012).

### 3.4. Analysis of FDI Inflows to Nigeria

Foreign direct investment (FDI) in Nigeria is defined as investments undertaken by enterprises that are either partly or wholly foreign-owned. The Investment Code that enacted the Nigerian Investment Promotion Commission (Decree No. 16 of 16th January 1995) and the Foreign Exchange (Monitoring and Miscellaneous Provision) also gave full legal support for FDI in the country in 1995 (UNCTAD, 2006). The Central Bank of Nigeria usually collects FDI data in Nigeria using company surveys. Enterprises and businesses surveyed are usually those in which their foreign ownership base is at least 75% of total equity (UNCTAD, 2006). The data comprises foreign share capital, head offices liabilities, unremitted profits as well as other foreign liabilities. The International Monetary Fund (IMF) also provides FDI data in the country's balance-of-payments statistics.

This section presents available data on FDI flows to Nigeria. The first sub-section compares FDI flows into Nigeria with those coming into Africa as a whole, while the second sub-section explains what factors have led to the trends shown in FDI flows since 1970. The third sub-section presents a sectoral analysis of FDI flows and examines which sectors have been the most recipient of FDI flows and those that have been the least beneficiaries of inward FDI to Nigeria.

#### 3.4.1. Nigeria as Top FDI Destination in Africa

As noted earlier, Nigeria is among the top nations receiving FDI in Africa. Between 1990 and 1996, Nigeria witnessed the largest share of Africa's FDI inflows, with about 32.5%, on average, of the continent's cumulative FDI flows coming to Nigeria alone (see Table 3.1). However, since the past two decades, Nigeria's share of Africa FDI has significantly reduced, as new investment opportunities are being discovered in other African countries, whilst recent economic downturn caused by falling commodity prices continue to lead to divestments from Nigeria and some Sub-Saharan African countries. Latest figures from the World Investment Report 2017 show that between 2011 and 2016, Angola had consistently remained top for FDI inflows in Africa, receiving on average about 22% of the continent's entire FDI (UNCTAD, 2017).

**Table 3.1: Nigeria Vs Africa: Foreign Direct Investment Inflows (US\$ Million)**

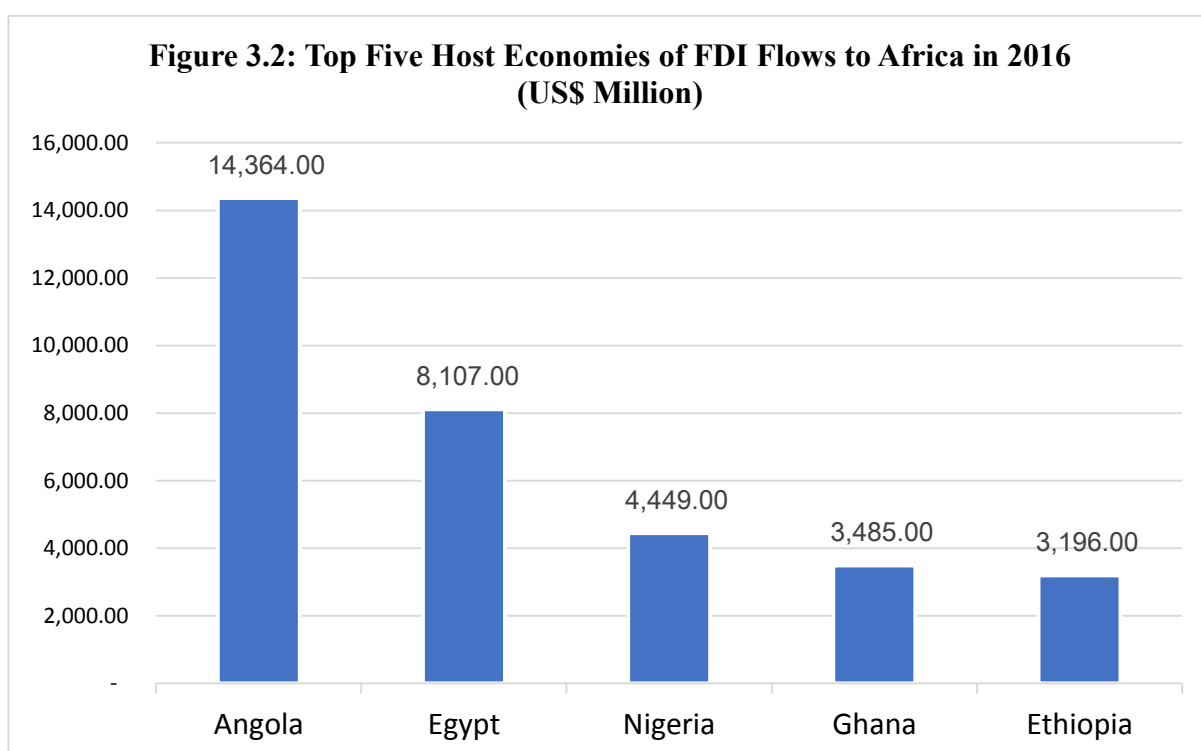
Year	Nigeria	Africa	Percentage of Africa
1990	1,002.50	2,845.17	35.24
1991	1,123.90	3,543.55	31.72
1992	1,156.70	3,839.98	30.12
1993	1,878.10	5,443.87	34.50
1994	2,287.40	6,104.52	37.47
1995	1,271.05	5,655.13	22.48
1996	2,190.68	6,037.85	36.28
1997	1,642.47	11,030.17	14.89
1998	1,210.11	11,628.08	10.41
1999	1,177.71	11,836.14	9.95
2000	1,309.67	9,624.42	13.61
2001	1,277.42	19,947.67	6.40
2002	2,040.18	14,693.15	13.89
2003	2,171.39	18,230.83	11.91
2004	2,127.09	17,737.80	11.99
2005	4,978.26	29,510.55	16.87
2006	4,897.81	34,528.31	14.18
2007	6,086.73	50,206.30	12.12
2008	8,248.64	57,769.55	14.28
2009	8,649.53	54,379.24	15.91
2010	6,098.96	44,072.22	13.84
2011	8,914.89	66,018.00	13.50
2012	7,127.38	77,501.00	9.20
2013	5,608.46	74,551.00	7.52
2014	4,693.83	71,254.00	6.59
2015	3,064.00	61,495.00	4.98
2016	4,449.00	59,373.00	7.49

**Source:** UNCTAD, FDI/TNC database ([www.unctad.org/fdistatistics](http://www.unctad.org/fdistatistics)).

Figure 3.2 shows the top five countries in Africa that dominated the FDI space in 2016. As of 2016, Nigeria has now slipped to the third position in FDI flows in Africa behind Angola and Egypt, while Ghana and Ethiopia gained 4<sup>th</sup> and 5<sup>th</sup> position, respectively. As of 2016, these five countries jointly accounted for nearly 57 percent of FDI inflows to Africa (UNCTAD, 2017). Angola's FDI leadership position in Africa is due to an ongoing greenfield investment, which has hit a six-year high. According to the World Investment Report 2015 (UNCTAD, 2015), the \$16 billion oil and gas projects in Angola alone, contributed more than one third of total greenfield investments announced for all LDCs in 2014 (\$48 billion, more than double the reported FDI inflows). Egypt, the second largest FDI host in Africa, has witnessed massive inflow of FDI, driven by foreign investment reforms, with new discoveries in gas. As in 2015, most of the growth were due to investments in Egypt with FDI inflows recording a 17 per cent increase from 2015 to \$8.1 billion in 2016. The unearthing of gas reserves in Egypt's Western Desert by Royal Dutch Shell

(Netherlands) remained a key driver of investments in the country's hydrocarbons sector.

Low commodity prices have stifled economic potentials in Sub-Saharan Africa and minimised investor interest in the sub-region. As noted earlier, the fall in oil prices in 2014, which led to a decline in Nigeria's foreign exchange reserves and a depreciation of the currency has precipitated a drastic decline in FDI flows from a peak of US\$8.9 billion in 2011 to US\$3.1 billion in 2015 (Ministry of Budget and National Planning, 2017). Although FDI flows to Nigeria recovered to \$4.4 billion in 2016 (45 per cent increase from a 2015 low), they remained well below previous record levels. FDI in Nigeria remained relatively depressed, as its oil production output fell to historic lows in 2016, and the country went into recession for the first time since 1991, as earlier noted. Ghana FDI inflows, the 4<sup>th</sup> largest FDI recipient, increased by 9 per cent from 2015 to \$3.5 billion in 2016. Eni (Italy) and Vitol Group (Netherlands), in partnership with Ghana's National Petroleum Corporation, continued development on the \$7 billion offshore oil and natural gas project in the Western region of Ghana (UNCTAD, 2017). Ethiopia, has consistently attracted higher FDI inflows over the past six years. Flows to Ethiopia rose by 46 per cent in 2015 to \$3.2 billion in 2016, driven by investments in manufacturing and infrastructure.



**Source:** World Investment Report 2017 (UNCTAD, 2017)

The major sources of FDI inflow in Africa are: United States, France, China, United Kingdom, and the United Arab Emirates, whilst South Africa is the largest intra-Africa FDI investor (Ernst & Young, 2017). However, compared to other regions, Africa has never been a major recipient of FDI flows as it lags behind other regions of the world. For example, by 1990, the share of FDI in Africa was a meagre 1.37 percent compared to Asia's share of 10.92 percent and by 2012, while Africa's share was just 3.70 per cent; Asia received a whopping 30.11 per cent (Agwu, 2014). As of 2016, Africa's share of the global FDI is approximately 3.4% percent far below Asia's share of 25.34 percent (UNCTAD, 2017). FDI is still concentrated in only a few African countries for several reasons ranging from poor infrastructure, negative image of the region, foreign exchange shortages and corruption, unfavourable macroeconomic policy environment, and others (Ayanwale, 2007).

#### 3.4.2 Trend Analysis of FDI Inflow to Nigeria (1970-2016)

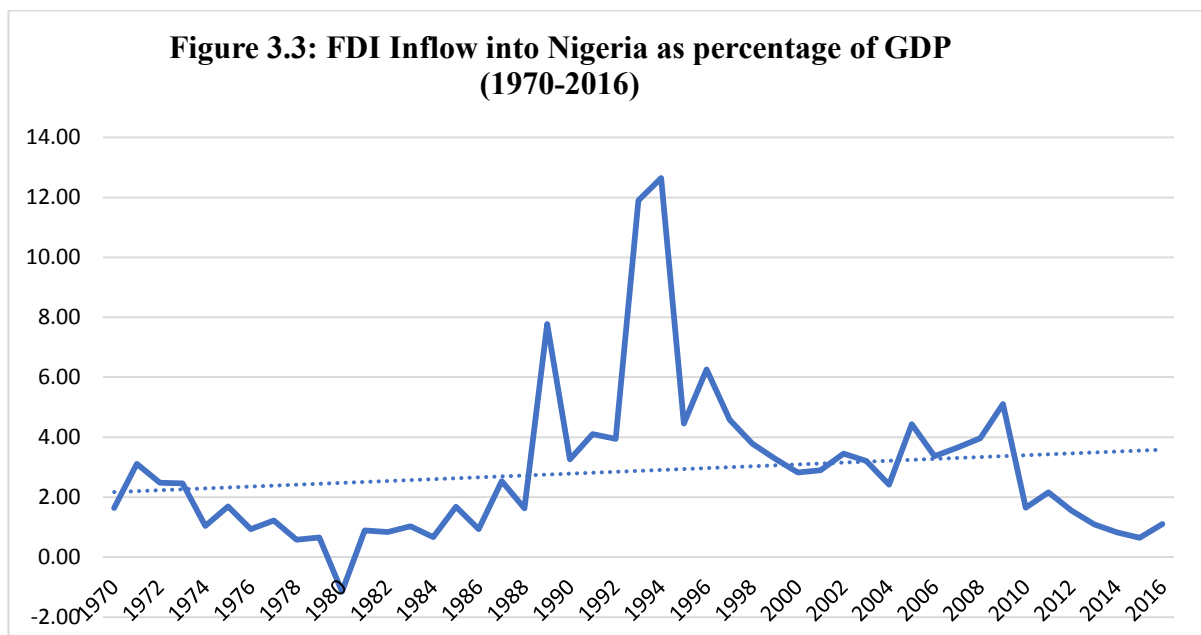
The statistics of FDI inflow to Nigeria for the period of 1970-2016 are presented in Table 3.2. Nominal FDI inflow ranged from US\$205 million in 1970 to US\$378 million in 1988 and then soared to over US\$ 1.8 billion in 1989, reaching its peak in 2011 at US\$ 8.9 billion. As noted earlier, due to falling oil prices and a weakening exchange rate, FDI flows to Nigeria have plummeted to US\$3 billion in 2015 and then increased by 45% to US\$4.45 billion in 2016, as a result of the prospects for economic recovery. FDI accounts for a small percentage of Nigeria's GDP, however, making up 1.63% in 1970, -1.15 in 1980 and 3.26% in 1990. FDI inflows as a percentage of GDP was highest in 1994 at 12.65% but has since then fallen considerably to 1.10% of GDP. On the whole, it formed about 2.9% of the GDP over the whole period from 1970-2016 (See also figure 3.3).

**Table 3.2: Nigeria: Foreign Direct Investment, 1970-2016**

Year	Nigeria FDI inflows (US\$ million)	FDI as percentage of GDP
1970	205.00	1.63
1971	286.00	3.11
1972	305.00	2.48
1973	373.00	2.46
1974	257.00	1.03
1975	470.12	1.69
1976	339.00	0.93
1977	440.51	1.22
1978	210.93	0.58

1979	309.60	0.66
1980	(738.87)	-1.15
1981	542.33	0.89
1982	430.61	0.84
1983	364.44	1.03
1984	189.17	0.66
1985	485.58	1.68
1986	193.22	0.93
1987	610.55	2.53
1988	378.67	1.63
1989	1,884.25	7.78
1990	1,002.50	3.26
1991	1,123.90	4.10
1992	1,156.70	3.95
1993	1,878.10	11.89
1994	2,287.40	12.65
1995	1,271.05	4.45
1996	2,190.68	6.26
1997	1,642.47	4.59
1998	1,210.11	3.78
1999	1,177.71	3.28
2000	1,309.67	2.82
2001	1,277.42	2.89
2002	2,040.18	3.45
2003	2,171.39	3.21
2004	2,127.09	2.42
2005	4,978.26	4.44
2006	4,897.81	3.37
2007	6,086.73	3.66
2008	8,248.64	3.96
2009	8,649.53	5.10
2010	6,098.96	1.65
2011	8,914.89	2.17
2012	7,127.38	1.55
2013	5,608.46	1.09
2014	4,693.83	0.83
2015	3,064.00	0.64
2016	4,449.00	1.10

**Source:** UNCTAD, FDI/TNC database and CBN Statistical Bulletin (various years)



**Source:** UNCTAD, FDI/TNC database and CBN Statistical Bulletin (various years)

Before the early 1970s, foreign investment played a dominant role in the Nigerian economy. Until 1972 for example, most of the non-agricultural sector were controlled by large foreign owned trading companies running a monopoly on the importation and distribution of goods (Ayanwale, 2007). Because of the dominance of foreign enterprises in the Nigerian economic landscape, the Federal Government of Nigeria saw the need to adopt an indigenization plan. This began in 1972 with the promulgation of the Nigerian Enterprises Promotion Decree (NEPD). This decree imposed numerous restrictions on FDI entry (Ojong et al, 2015). The NEPD limited foreign equity participation in commercial and manufacturing sectors to a maximum of 60 per cent (Ayanwale, 2007). In 1977, a second indigenization decree was enacted to further restrict foreign equity participation in business activities in Nigeria to 40% (Ayanwale, 2007; Ojong et al, 2015). Therefore, between 1972 and 1988 official policy towards FDI was quite limiting. The regulatory policy environment discouraged foreign participation, which resulted in an average FDI flow of only 1.10% of GDP from 1973 to 1988.

The acceptance of the IMF-monitored Structural Adjustment Programmes (SAP), starting from 1986 started the process of removing the restrictive policies towards FDI. The SAP (1986-1988) emphasised privatization of public enterprises, market liberalisation and agricultural exports orientation (Ojong et al, 2015). A new industrial policy was introduced in 1989, which saw the debt to equity conversion scheme being a part of portfolio investment. In 1988, the Industrial Development Coordinating Committee (IDCC) was established to help facilitate and attract foreign



investment flows. This was followed in 1995, by the revocation of the Nigeria Enterprises Promotion Decree, which was replaced by the Nigerian Investment Promotion Commission Decree 16 of 1995. The NIPC absorbed and replaced the IDCC and allowed for up to 100% foreign ownership in all sectors except for the petroleum sector (where FDI is limited to joint venture ownerships and/or production sharing). More so, in line with the NIPC decree, the Foreign Exchange (Monitoring and Miscellaneous Provision) Decree 17 of 1995 was enacted to enable foreigners to invest in enterprises in Nigeria or in money market instruments whose foreign capital are legally channelled into the country. The decree permitted companies to freely regulate dividends accruing from such investment or of capital in eventuality of sale or liquidation (Ayanwale, 2007).

Following the return to Democracy in 1999, the Federal Government of Nigeria implemented a number of policy reforms to further attract FDI. In 1999, an export processing zone (EPZ) scheme was adopted to allow interested persons to set up businesses and industries within defined zones. The objective was particularly to export the goods and services manufactured or produced within the zone. The arrangement was geared towards the promotion and diversification of the export base of the country through the acceleration of export business with its vast attendant incentives. It included offshore banking, industrial production, international stock, commodities and mercantile exchanges, insurance and re-insurance, industrial research, commercial, agriculture and agro-allied industries, international tourist resort development and operations as well as mineral processing (UNCTAD, 2006).

The Nigerian government introduced provisions to cut off the bureaucratic bottlenecks in investment approval, by allowing the Nigerian Export Processing Zones Authority (NEPZA) to manage, administer, control and coordinate the quick approvals for participating foreign investors/firms. These included issuance of application forms and approvals, company registrations and construction licensing among others things (UNCTAD, 2006). Between 2003-2007, the Federal Government of Nigeria also implemented The National Economic Empowerment and Development Strategy (NEEDS), which had its focus on poverty reduction through investment in infrastructure and by using the private sector as the main engine for creating employment and achieving economic growth. NEEDS also made

FDI attraction a priority, especially by attracting investment from wealthy Nigerians living abroad and from Africans in Diaspora (Ojong, et al, 2015).

As a result of the adoption of the Structural Adjustment Program in 1986-1988, the NIPC, the EPZ and other reforms such as NEEDS, FDI flows to Nigeria increased markedly from US\$ 1.8 billion 1989, reaching a peak of US\$ 8.9 billion in 2011 (see table 3.2), but has since fallen below record levels due to the recent economic recession as explained earlier.

### 3.4.3. Sectoral Analysis of FDI Inflow to Nigeria

Although there has been some form of diversification into the manufacturing and services sectors in recent years, Nigeria's FDI has predominantly been concentrated in the extractive industries (i.e. oil and gas, solid minerals, etc). Table 3.3. shows the sectoral composition of FDI in Nigeria from 1970-2009, further decomposed into two sub-periods: era of capital account restrictions (1970-1994) and period after capital account liberalisation (1995 onwards). Data from the table shows a diminishing attention to the mining and quarrying sector, from about 51% in 1970-1974 to 22.6% in 2005-2009.

Conversely, FDI to the manufacturing sector received enormous attention accounting for 38.3% of total FDI between 1980-1984 and reaching a peak of 43.7% between 1990-1994. In the period immediately following capital account liberalisation in 1995, most of the nation's FDI were diverted back to the extractive industry (mainly oil and gas) between 1995-1999, reaching 43.5% of total FDI compared to 23.6% for manufacturing sector in the same period. FDI to manufacturing rose again to 40.7% in 2005-2009.

On average, FDI stock in manufacturing over the entire period analysed compares favourably with the quarrying and mining sector, with an average value of 33.5% and 29.8% respectively. In other words, manufacturing sector was the most highly favoured for attracting FDI by net flow of investment. Ekienabor et al. (2016) report that Nigeria has attracted more FDI in the brewery industry than in other manufacturing industries, demonstrating that the brewery industry has also been the largest contributor in the manufacturing sector. Though manufacturing sector currently seem to attract more FDI than other sectors of the economy, there are still many problems impeding the growth of the manufacturing sector in Nigeria, such as

high cost of doing business, and infrastructural deficiency, including poor transportation network and power supply. As a result, the country is slowly progressing towards economic diversification.

**Table 3.3: Sectoral Composition of FDI (1970-2009)**

Year	Mining & Quarrying	Manufacturing	Agriculture	Transport & Communication	Building & Construction	Trading & Business	Miscellaneous Services
<b>Sectoral Composition of FDI in the Era of Capital Account Restrictions (1970-1994)</b>							
1970-1974	51.2	25.1	0.9	1.0	2.2	16.9	2.7
1975-1979	30.8	32.4	2.5	1.4	6.4	20.4	6.1
1980-1984	14.1	38.3	2.6	1.4	7.9	29.2	6.5
1985-1989	19.3	35.3	1.4	1.1	5.1	32.6	5.2
1990-1994	22.9	43.7	2.3	1.7	5.7	8.3	15.4
<b>Sectoral Composition of FDI After Capital Account Liberalisation (1995 onwards)</b>							
1995-1999	43.5	23.6	0.9	0.4	1.8	4.5	25.3
2000-2004	33.7	28.8	0.7	1.2	2.4	7.7	25.6
2005-2009	22.6	40.7	0.4	2.1	2.2	8.2	23.9
<b>Period Average</b>	<b>29.76</b>	<b>33.49</b>	<b>1.46</b>	<b>1.28</b>	<b>4.22</b>	<b>15.97</b>	<b>13.83</b>

**Source:** CBN Statistical Bulletin (various years)

The stock of FDI in trading and business services (i.e. wholesale and retail trade) rose from 16.9% in 1970-1974 to 32.6% in 1985-1989, before nosediving to 8.3% in 1990-1994, given substantial increases in manufacturing and miscellaneous services in the same period. One other reason for the relatively low proportion of FDI represented by the trading and business services sector since 1990 is because wholesale and retail trade is largely dominated by informal markets, which remain the primary outlets for most products in West Africa, which are generally geared towards low income segments (Oh, 2017). Because of this, formal retailing is still burgeoning in Nigeria and accounting for roughly 5% of the entire market (*ibid*). Moreover, petty traders and local intermediaries make up a significant share (about 40%) of the wholesale market (*ibid*).

However, the prospects for the trading and business services sector is very positive in terms of FDI attractiveness. According to the 2015 African Retail Development Index, Nigeria is the fourth most attractive investment destination/market for retailers in sub-Saharan Africa, largely due to its volume of consumers and its growing middle class (Kearney, 2015). Nigeria has attracted a broad range of foreign investors, including South Africa's Shoprite, which is the continent's largest supermarket chain, and American-based KFC, which invested in 2009.

Nigeria has also assumed an important market for luxury retail goods (e.g. Hugo Boss, Porsche). As it is reported that land acquisition is the main obstacle to retail

growth in Nigeria, most investors would rather repurpose existing structures than navigate the many hurdles involved in opening a new space (Oh, 2017). Homegrown online retail business has also began to gain presence, with Konga.com and Jumia.com (which offer similar services to Amazon.com) leading the way. It is important to note that these domestic companies allow for cash-on-delivery payment, which caters for the still largely cash-based consumer base in Nigeria.

The miscellaneous services sector has accounted for nearly a quarter of FDI since 1995 (Table 3.3). This could be explained by the consolidation of the Nigerian financial services sector and the growth of the entertainment industry. FDI has also been attracted to numerous services firms that offer significant support to the oil and gas and manufacturing sectors. Agriculture, transport & communication and building & construction sectors remained the least attractive hosts of FDI in Nigeria in the period under review (1970-2009), with whole period average of 1.46%, 1.28% and 4.22% respectively.

However, the telecoms industry accounts for a considerable amount of FDI within the transport and communications sector and has increasingly attracted significant FDI in recent years. Between the period of 2001 and 2011, aggregate FDI into Nigeria's telecom industry was about US\$15.8 billion, which represented 35% of total private inward FDI during that period (Oh, 2017). In fact, in the past decade, Nigeria has become Africa's largest telecom market, with 140.8 million active telecom users and subscribers as at the end of 2015, which rose from 95.8 million at the end of 2011 (Oh, 2017). Mobile phone subscription accounted for 99.87% of the entire telecom market in 2015 (*ibid*). Three of the four-telecom companies that dominate the mobile market in Nigerian are foreign based. South Africa's MTN accounts for about 44% of total mobile subscriptions, followed by Nigeria-based Globacom accounting for 21%, India-based Airtel accounted for 20%, and UAE-based Etisalat 15% (Oh, 2017).

### 3.5. Impact of FDI on Economic Growth in Nigeria

Some studies have been conducted on FDI and economic growth in Nigeria; albeit with varying submissions and findings. An example is Odozi (1995), which reported on the factors that affected FDI inflow in Nigeria both before and after the structural

adjustment programme (SAP) periods and the findings were that the macroeconomic policies that were in place before the SAP were unfavourable to foreign investors. Such policy environment led to the spread and growth of parallel markets and continued capital flight.

In addition, Ekpo (1995) reports that Nigeria's inflation rate, political regime, real income per capita, world interest rate, sovereign credit rating and the huge debt service burden were the key factors driving the variability of FDI into Nigeria. Oyinlola (1995) examined the contributions of foreign capital to the prosperity of LDCs and conceptualised foreign capital to include export earnings, foreign loans and direct foreign investments. He used Chenery and Stout's two-gap model, and concluded that FDI has a negative impact on economic growth and development in Nigeria. Adelegan (2000) explored the ostensibly unrelated regression model to examine the impact FDI had on economic growth in Nigeria and found that FDI is pro-import and pro-consumption and has a negative relationship with gross domestic investment. Akinlo (2004) found that foreign capital has a little and statistically insignificant impact on economic growth in Nigeria.

However, these studies never controlled for the fact that most of the FDI were concentrated in the extractive industry (particularly the oil and gas sector, which accounts for more than 90% of the country's foreign earnings). At the firm level productivity spillover, Anyanwale and Bamire (2001) looked at the influence of FDI on firm level productivity in Nigeria and reported a positive spillover of foreign firms on the productivity of domestic firms.

Much of the older (pre-2005) empirical work on FDI in Nigeria were based on examination of its determinants, nature and potentials. For example, Odozi (1995) noted that foreign investment in Nigeria comprised of mostly "greenfield" investment. That is, it is mostly used to establish new enterprises and some through already existing enterprises. Aremu (1997) categorised the different types of foreign investment in Nigeria into five: (1) joint ventures, (2) wholly foreign-owned, (3) special contract arrangements; (4) marketing arrangements and technology management, (5) sub-contract co-production and specialization. Anyanwu (1998), studied the determinants of FDI in Nigeria and identified indigenization policy, change in domestic investment, change in domestic output or market size, change in openness of the economy, all as major determinants of FDI.

He further observed that the abolition of the indigenization policy in 1995 encouraged FDI inflow into Nigeria and that effort must be made to boost the nation's economic growth in order to attract more FDI. Jerome and Ogunkola (2004) examined the direction, prospects and magnitude of FDI in Nigeria. They found that while the FDI regime in Nigeria was recording general improvement, some serious deficiencies still exist. These deficiencies are mainly around institutional uncertainty and corporate environment (such as labour law, corporate law, bankruptcy, etc), as well as the rule of law. The establishment and the activities of the Independent Corrupt Practices Commission (ICPC), Economic and Financial Crimes Commission (EFCC), and the Nigerian Investment Promotion Commission (NIPC) are efforts to enhance the corporate environment and support the rule of law. In spite of all these policy interventions, no visible change in the relationship between FDI and economic growth has been recorded.

The recent studies conducted on FDI and economic growth in Nigeria have tended to focus on using econometric models to investigate the relationship between FDI and macroeconomic variables like GDP, Balance of Payments, inflation and exchange rates. For example, Ehimare (2011) found that while inflation did not have any significant impact on FDI flows, exchange rate has a positive effect on FDI. Using a co-integration approach to investigate the impact of FDI on Nigeria's economic growth, Egbo and Onwumere (2011) found a positive long run relationship between FDI and GDP; which they used as a proxy for economic growth. Umoh et al. (2012) analysed the endogenous effects between FDI and economic growth and found evidence of a positive bi-directional causality (that is, there is a positive feedback flowing from FDI to growth and from growth to FDI). The overall implication of their result is that the government will need to pursue policies that attract more FDI flows to the economy, while reinforcing those policies that foster greater openness and increased private participation to ensure that the local economy captures greater spillover benefits from FDI inflows and achieve higher economic growth rates.

Using OLS regression for up to 30 years of data, Danja (2012) also found that a positive relationship exists between FDI and macro variables like GDP, index of industrial production (IIP) and gross fixed capital formation (GFCF) but found that FDI has not contributed much to the growth and development of the Nigerian economy due to investment obstacles such as repatriation of profits by

multinationals, contract fees and interest payment on foreign loans. Awolusi (2012) used a vector error correction model (VECM) to examine the long-run equilibrium relationships among economic growth and international factors as well as to examine the short-term impact of inward FDI, trade and domestic investment on economic growth in Nigeria from 1970 to 2010. The results of his study were like those found by Akinlo (2004), which showed that FDI had a bi-directional significant influence on economic growth. Furthermore, both imports and domestic investment had positive impacts on economic growth in Nigeria during the period under review.

On the issue of causality between FDI and economic growth, the results show mixed evidence. Eravwoke and Eshanake (2012) found that economic growth (GDP) does not Granger cause FDI in Nigeria. Nevertheless, the study by Olusanya (2013) investigates causality by disaggregating the sample period (1970-2010) into two: 1970-1986 (pre-deregulation era) and 1986-2010 (post-deregulation era). According to the causality test results, there is a causal relationship in the pre-deregulation era (1970-1986) from economic growth (GDP) to FDI which implies that GDP causes FDI, but there is no causal relationship in the post-deregulation era (1986-2010) between economic growth and FDI, meaning that GDP does not Granger cause FDI.

However, between 1970 and 2010 (the full sample period), the result shows that there is a causal relationship between GDP and FDI and vice versa. The results on causality have implications for the implementation of an appropriate economic development strategy. In the case where there is causality from FDI to growth, the government emphasizes the attraction and retention of foreign capital, while in the case of causality from growth to FDI, the government encourages local economic development via domestic investment and institutional development to attract FDI.

Several studies in recent times, have also examined the economic impact of FDI across economic sectors in Nigeria, including the contribution of FDI to sectoral growth. Kola and Olalekan (2011) examined the effect of FDI on the development of small and medium sized enterprises (SMEs) such as agriculture businesses and local transport operators in Nigeria and found that FDI has a negative influence on the development of SMEs. This may be due to the fact that foreign investment may not have a direct impact on small firms and may in fact crowd out the market for products of small local firms by increasing competition in the domestic markets. Contrarily, Abdul and Barnabas (2012) examined the impact of FDI on

manufacturing sector performance in Nigeria and found that there is a long-run relationship between the performance of manufacturing firms and FDI in Nigeria; and that causality flows from FDI to the performance of manufacturing firms. Anowor et.al (2013) on FDI and manufacturing sector growth in Nigeria also showed that FDI, exchange rate, degree of trade openness and domestic investment were statistically significant in explaining the growth variations in manufacturing output in Nigeria.

Furthermore, Ekienabor et al (2016), using time series data from 1981-2012, examined the effect of FDI on manufacturing output and also found a positive relationship. These results confirm the role of foreign investment driving growth in the manufacturing sector. Indeed, higher capital inflows lead to potential spillover effects in terms of transfer of modern technology, technical knowhow and linkage effects via supply chain development. As noted earlier, the brewery industry has been the largest manufacturing sector contributor, contributing about 28% of manufacturing value added (MVA) as well as providing direct employment for over 30,000 persons and indirect employment to nearly 300,000 persons including firms producing ancillary services (Okwo et al., 2012).

Some studies have also examined the impact of FDI on the agricultural sector in Nigeria. Akande and Biam (2013) carried out an inflation-based scenario analysis of causality between FDI in the agricultural sector and agricultural output in Nigeria and their findings showed absence of long-run relationship between FDI in agriculture and agricultural output both with and without inflation shock. Idowu and Ying (2013) in their study also supported the findings that FDI has no significant effect on agricultural output. Even though these studies reported insignificant impact, they failed to show the type of relationship that exist between FDI and agriculture. Ogbanje et.al (2010) found a positive and strong relationship between agricultural FDI and agricultural GDP using Pearson Product Moment Correlation analysis to determine the relationship.

Binuyo (2014) also found a positive and significant relationship between FDI and agricultural output using multiple regression analysis with the whole volume of FDI as one of the regressors. Yusuff et al (2015) examined the effect of FDI on the contribution of agricultural sector to GDP and found that there is a direct relationship between the inflow of FDI and the sector's contribution to GDP. The conflicting



results noticed in these studies; can be explained by the type of FDI they used in their analysis. Those studies that found positive significant relationship between FDI and agricultural sector growth used FDI that is obtainable in the entire economy as against the FDI that flows specifically to agricultural sector. Whereas those studies that found insignificant relationship used agricultural FDI in multiple regression analysis.

A few studies have also looked at the economic impact of FDI on the growth of the services sector in Nigeria. On the impact of FDI on telecommunication sector growth, Oji-Okoro (2010) used OLS estimation technique on time series data for the period 2001-2008. He found that; except for GDP, all other variables such as private investment, consumer subscribers and technology have a positive and significant relationship with FDI.

Using an extended period of analysis from 1986 to 2014, Ezeanyej and Ifebi (2016) also found a positive relationship between FDI and telecoms growth in Nigeria. Since the influx of foreign based mobile telecom providers in Nigeria, the contribution of the telecoms sector to GDP growth has increased markedly. Telecommunications accounted for about 8.5% of Nigeria's GDP in 2014, up from about 7.6% in 2013, and 1.1% in 2003 (Oh, 2017). On the impact of FDI on the Nigerian banking sector, Korna, Ajekwe and Idyu (2013) examined the level of impact FDI has on the Nigerian banking sector in the wake of the unprecedented capital flight from the Nigerian economy during the global economic recession using data from 2006-2010.

There result revealed that there is a negative significant impact of FDI on the equity capital of the Nigerian-banking sector, while there is an insignificantly negative impact of FDI on the liquidity position of the banking sector in Nigerian. These results are expected; given the scale of the credit crunch that wrecked several financial markets including the developed credit markets where the crisis had a more severe impact.

### 3.6. Financial Development in Nigeria

As reviewed in Chapter 2, the impact of FDI on economic growth is dependent on the development of the local financial markets (namely credit markets and stock markets) of the host country. This section looks at financial development in Nigeria and specifically, the liberalization of the financial sector. The Nigerian financial

system is made up of both the Money and Capital Markets. Given that Nigeria, like many other developing countries is largely dominated by banks, the money market therefore has become the hub of the financial sector in Nigeria where short-term funds are transferred between the surplus spending units and deficit spending units. Central Bank of Nigeria (CBN), which is the apex regulatory body of banking business in Nigeria creates the environmental and institutional framework conducive for the mobilisation and channelling of funds through this market to the productive sectors of the economy. The main instruments traded in the money market include certificates of deposit, treasury bills, bankers' acceptances and commercial papers. Deposit money banks are the major players in the money market and as such movements in their portfolios have major consequences for the performance of the economy (Nnanna, et al., 2004).

The capital market, on another hand, is the arm of Nigeria's financial system that facilitates the mobilization of development projects and long term capital to finance investments. The Nigerian Stock Exchange provides infrastructures and an organised environment for conducting capital market business activities in Nigeria. Like the CBN, the Securities and Exchange Commission (SEC) is the apex regulatory and supervisory body for the Nigerian capital market including the stock exchange. Other institutions which operate within the industry include issuing houses and stock brokers. Technically, the capital market is divided into two segments: the primary market where company shares are first issued before they are quoted on the Stock Exchange, and the secondary market, which is for the trading of existing shares (Nnanna et al., 2004). The commonly traded instruments in this market include ordinary shares and long-term bonds and stocks. Other instruments include the state government bond and the Federal government development loan stocks. Although the capital market and other financial institutions like insurance companies, pension funds, and finance/investment companies are only beginning to grow because of the recent financial reforms, banks still dominate the financial landscape.

#### 3.6.1. Financial Sector Reforms in Nigeria

The move towards a liberalised financial system was induced by reforms embodied in the IMF-inspired Structural Adjustment Programme (SAP) of 1986. The main objectives of the SAP were to drastically restructure and diversify the productive base of the Nigerian economy, to pursue non-inflationary growth, deregulate the

economy, privatise public enterprises, as well as the attainment of external balance (CBN, 2000). These reforms brought about the loosening of credit allocation quotas and the deregulation of interest rates. The multi-structured foreign exchange market that was in operation at the time also presented numerous arbitrage and profit opportunities for banks which greatly affected normal financial intermediation. This resulted in a huge entry of new banks from the late 1980s specialising in foreign exchange operations that took advantage of price wedges.

Although, banks grew numerically during this period and the financial sector blossomed, yet financial intermediation as measured by private sector credit and deposits, reduced (Bello, 2005). Thus, the removal of controls (as in financial liberalisation) did not guarantee the efficiency of financial intermediation. During this period, commercial banks were operating at the retail end of the market where small to medium savings were mobilised and disbursed in the form of loans and advances while merchant banks on the other hand were essentially wholesale banks providing such services as deposit taking and acceptances, investment advice, bills discounting to equipment leasing among other activities.

Nigerian banks have grown appreciably in number and branch network. However, commercial banks have experienced more growth compared to their merchant counterparts. While the number of commercial banks in 1980 stood at 20 (with 740 branches), merchant banks that were in operation were 6 (with 12 branches). By 1986, the number of commercial banks stood at 29 (with 1367 branches) compared to 12 merchant banks (with 27 branches) - See Table 3.4. The effect of the 1986 liberalization reflected in the increase in the number of commercial banks to 65 in 1994 with 2,403 branches, though this number fell to 54 banks and 2,234 branches in 2000, following the re-tightening of regulation including an increase of mandatory minimum capital requirement and liquidation of ailing banks by the Nigerian Deposit Insurance Corporation (NDIC) (Enendu, et al., 2013).

**Table 3.4: Growth in Number of Banks and Bank Branches (1980-2013)**

Year	No of Banks in Operation			No of Bank Branches		
	Commercial Banks	Merchant Banks	Total	Commercial Banks	Merchant Banks	Total
1980	20	6	26	740	12	752
1981	20	6	26	869	15	884
1982	22	8	30	991	19	1010
1983	25	10	35	1,108	24	1,132

1984	27	11	38	1,249	25	1,274
1985	28	12	40	1,297	26	1,323
1986	29	12	41	1,367	27	1,394
1987	34	16	50	1,483	33	1,516
1988	42	24	66	1,665	46	1,711
1989	47	24	81	1,885	54	1,939
1990	58	48	106	1,937	74	2,011
1991	65	54	119	2,023	84	2,107
1992	66	54	120	2,275	116	2,391
1993	66	54	120	2,258	124	2,382
1994	65	51	116	2,403	144	2,547
1995	64	51	115	2,368	144	2,512
1996	64	51	115	2,407	147	2,554
1997	64	51	155	2,330	147	2,477
1998	51	38	89	2,107	113	2,220
1999	57	33	90	2,234	110	2,344
2000	54	36	90	2,234	194	2,428
2001	90	-	90	3,247	-	3,247
2002	90	-	90	3,247	-	3,247
2003	89	-	89	3,010	-	3,010
2004	89	-	89	3,492	-	3,492
2005	25	-	25	2,815	-	2,815
2006	25	-	25	3,245	-	3,245
2007	24	-	24	4,296	-	4,296
2008	24	-	24	4,952	-	4,952
2009	24	-	24	5,436	-	5,436
2010	24	-	24	5,809	-	5,809
2011	24	-	24	5,454	-	5,454
2012	21	-	21	5,564	-	5,564
2013	24	-	24	5,639	-	5,639

**Source:** CBN Statistical Bulletin (various years)

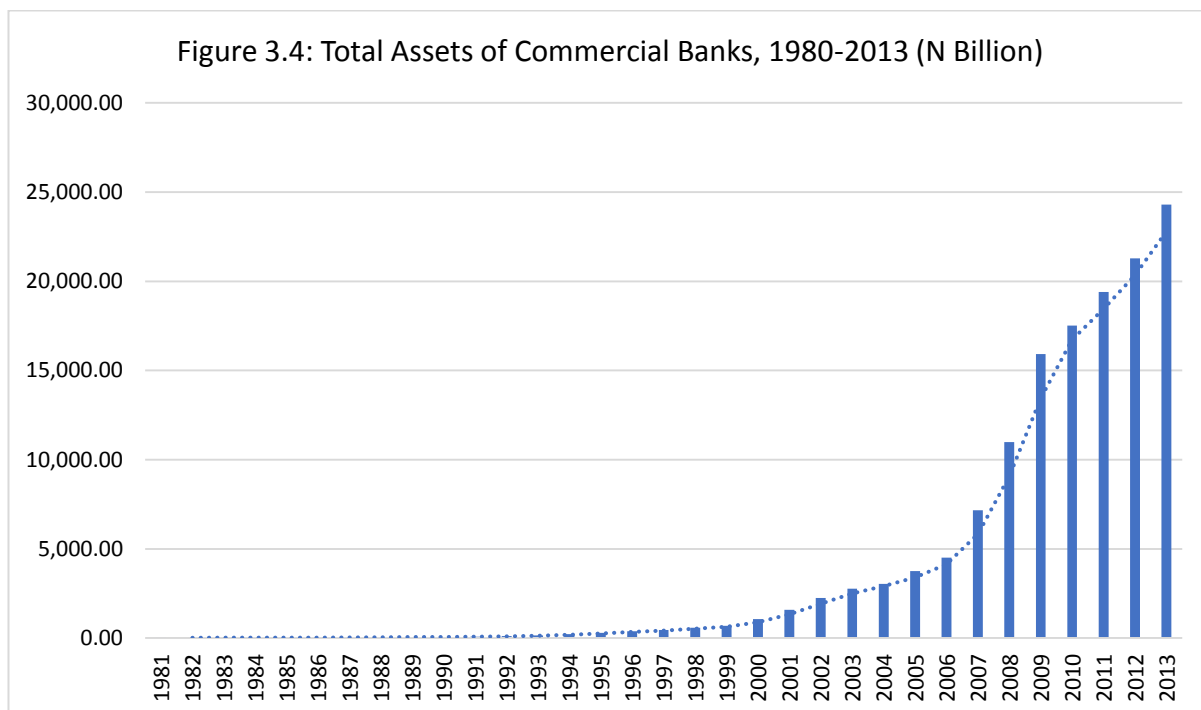
This dual banking structure however, placed some limitations on the scope and scale of efficient intermediation. Thus, with the introduction of the universal banking system in 2001, commercial banks now engaged in other aspects of business where large amount of funds are intermediated especially in syndication of loans and other activities that are typically within the purview of corporate finance and investment banking. The emergence of universal banks in 2001 broke the dichotomy between merchant and commercial banking (Aderibigbe, 2004), bringing the total number of

banks to 90 with 3,247 branches. The number of banks dropped slightly to 89 as at 2004.

The banking consolidation of 2004/05 in Nigeria, which led to the recapitalisation of existing banks and the acquisition of smaller banks by larger banks produced stronger and bigger banks, reducing the number drastically from 89 to 25 as at 2006 and to 24 following the merger of two of the 25 banks in 2007. Bello (2005) points out that the elimination of weaker banks and the institution of well capitalised banks should create opportunities for greater diversification and financial intermediation. Although the number of banks dropped during this reform period, there was an increase in total branch network to 4,296 as at 2007.

Following the global economic crisis of 2008–09, the Nigerian financial sector experienced further consolidation and growth after further reforms were introduced, bringing the total number of banks to 21 and 5,564 branches in 2012. The Nigerian banking sector grew at an annual average rate of 18.6% during 2010–13 and has become West Africa's largest banking market (Oh, 2017). Financial reforms have produced a financial landscape characterized by improved financial infrastructure, large and strong banks and an efficient payments system. Nigeria-based banks such as United Bank for Africa, Zenith Bank and Guaranty Trust Bank among others, have a strong presence across the African continent.

In the process of carrying out intermediation function over the years, Nigerian banks have built up enormous amount of assets base. The growth in the total asset of the banks has showed an exponential trend over the past three decades. From N82.95 billion in 1990, the total assets of the banks grew by over 70 per cent to N694.6 billion at end-December 1998, and rose substantially to N10,106.4 billion in 2007, representing a growth of 1,354.9 per cent between 1998 and 2007 (see figure 3.4). Following the relative stability in the sector the total asset grew by 71.5 per cent between 2007 and 2010 to reach N17,522.9 billion at end-December 2010. As at December 2013, total banking assets stood at N24, 301.20 billion.



**Source:** CBN Statistical Bulletin (various years)

Several factors accounted for the growth of bank assets in Nigeria, such as the growth of the economy fuelled by oil revenues, the rise in the demand for banking services and the liberalization of entry conditions under SAP.

### 3.6.2. Financial Development Indicators

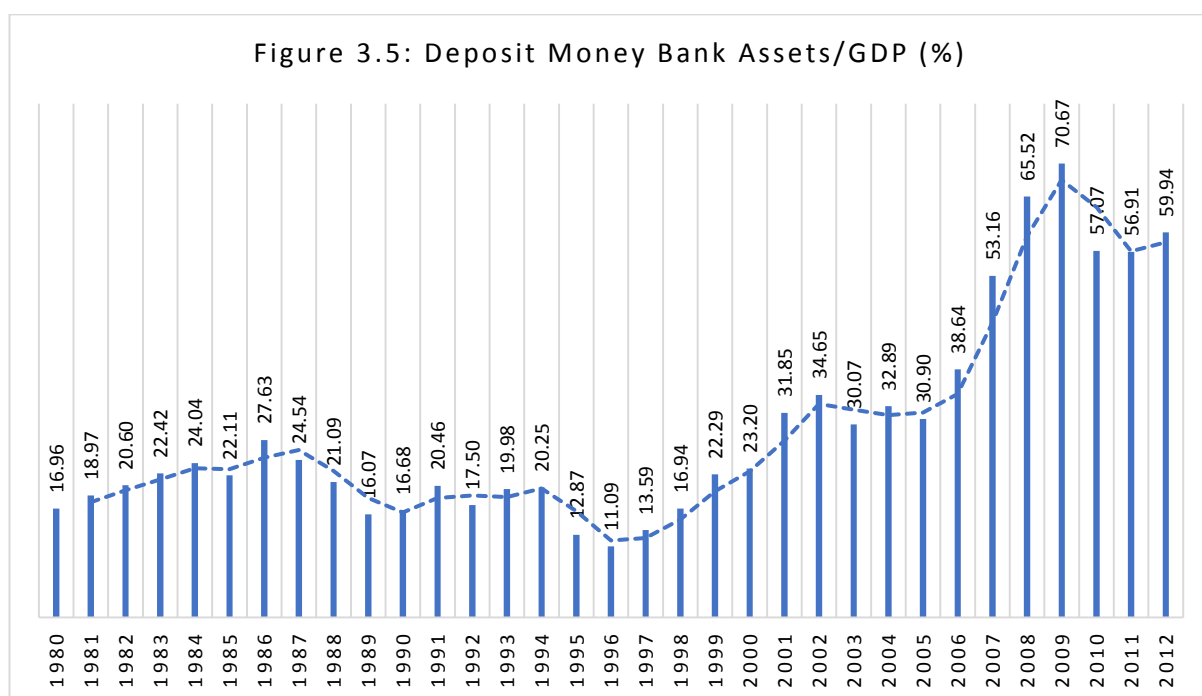
#### 3.6.2.1. Banking Development Indicators

##### **(a) Size Indicators**

The size of the formal financial intermediary sector has been hypothesised to be positively related to the provision of financial services (McKinnon, 1973; King and Levine, 1993a). There are two commonly used measures of size or financial depth: the ratio of total banking assets to GDP and the ratio of liquid liabilities to GDP.

**Deposit Money Bank Assets/GDP ratio:** As noted earlier, commercial bank assets have grown at a phenomenal rate over the years. But to measure the size of banking development, total assets is often expressed as a proportion of GDP. The resultant ratio measures how important banks are in the general provision of credit to the economy. Total DMB assets as a proportion of GDP in Nigeria ranged between 11% and 27.6% between 1980 to 2000, averaging 19.5% within this period. However,

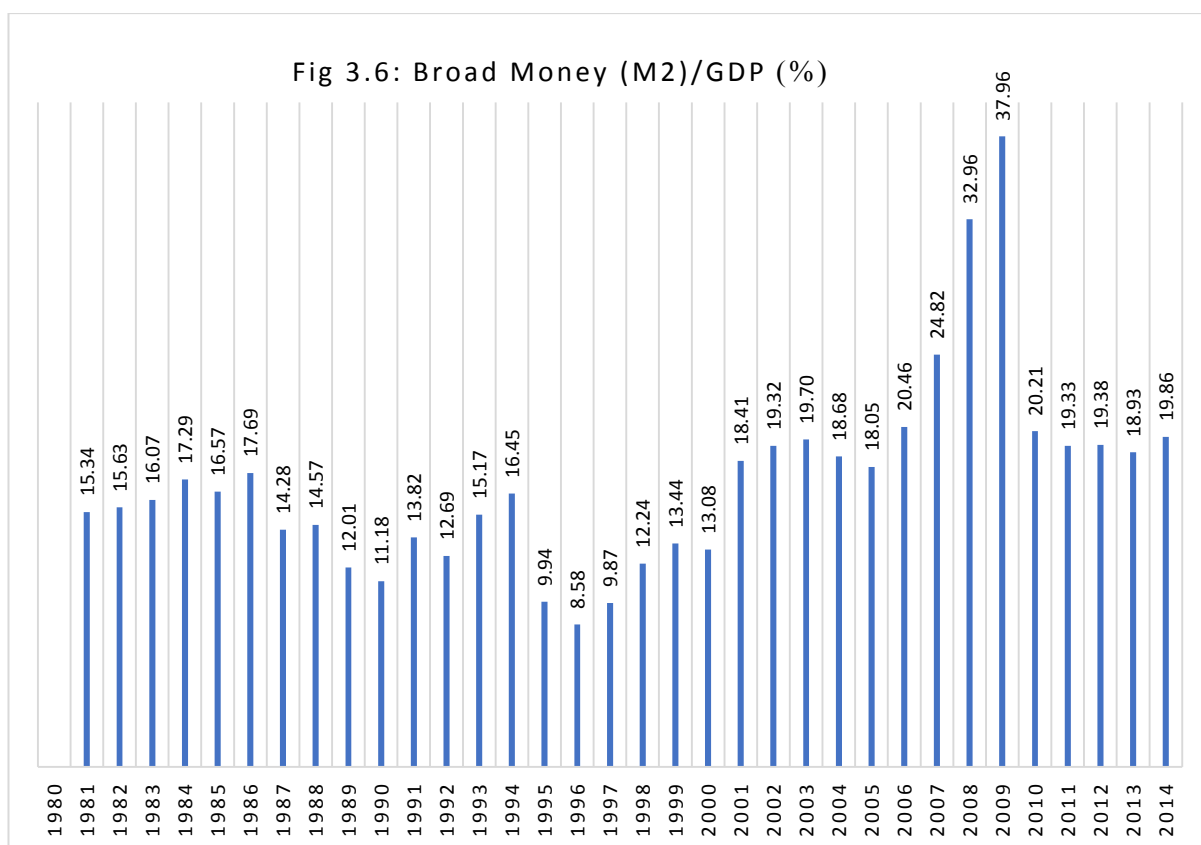
with the introduction of universal banking in 2001, this ratio grew to 34.6% in 2002 and following the consolidation of the banking industry, commercial bank assets grew further to over half of the GDP in 2007, averaging 60.5% between 2007 and 2012 (see figure 3.5). One critique of this measure of size is that banks are not the only players in the financial system and so using this measure, excludes other financial services providers who offer vital financial intermediation functions such as risk management, information acquisition, and monitoring services (King and Levine, 1993a).



**Source:** CBN Statistical Bulletin (various years)

**Broad Money (M2) or Liquid Liabilities/GDP:** This is another useful measure of the performance of banks. It indicates the size or depth of the financial intermediary sector as well as the extent to which banking culture is promoted by banks, since it is comprised of the ratio of total currency outside banks as well as deposits (interest and non-interest bearing) to GDP. It is also a measure of the degree of monetization in the economy since it provides information on valuable payment and savings services (Umejiaku, 2011). The ratio of M2 to GDP in Nigeria averaged 15% between 1980 and 2001 and increased in the immediate post-consolidation period to 20% in 2006, 25% in 2007, 33% in 2008 and reaching a peak of 38% in 2009. Due to the growth of M2 and rising inflationary pressures, the Central Bank of Nigeria maintained a tight monetary policy stance, which led to a fall in liquid

liabilities as a proportion of GDP, averaging 19.5% between 2010 to 2014 (See Figure 3.6).



**Source:** CBN Statistical Bulletin (various years)

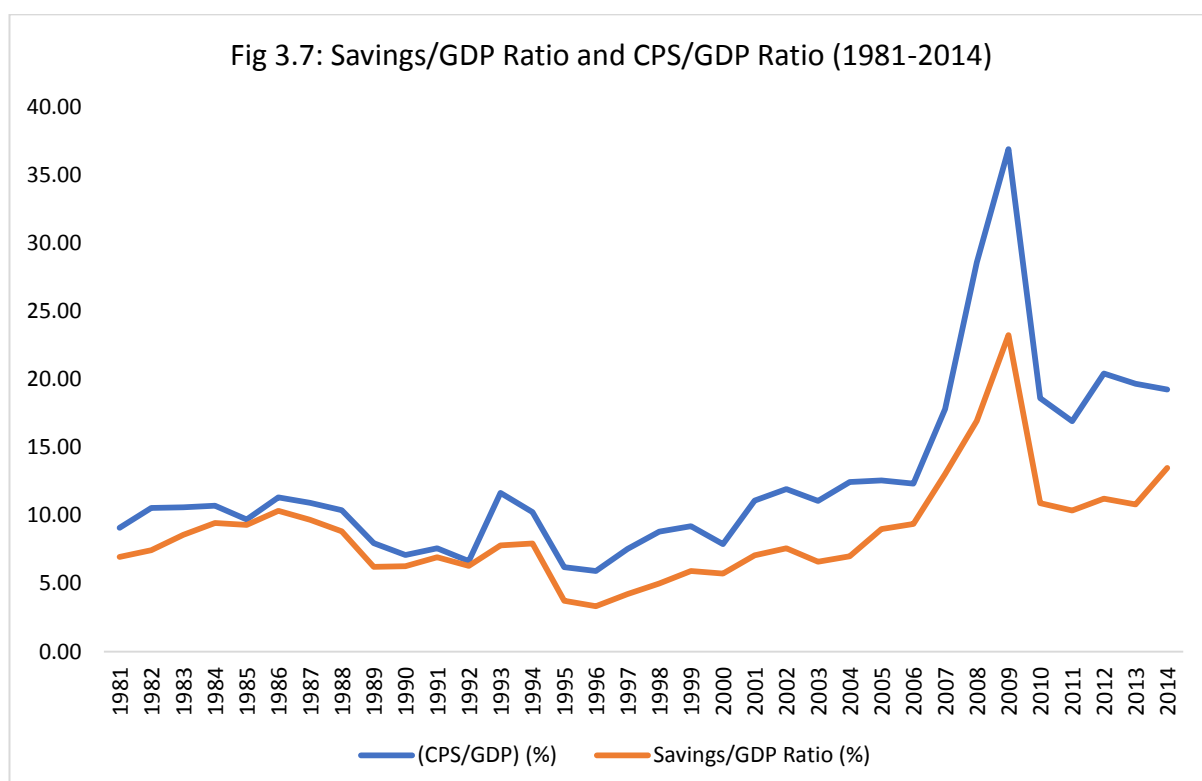
### **(b) Banking Activity Indicators**

**Savings/GDP ratio:** One main function of banks is to mobilize savings for financing investments. Between 1980 and 1986, there was a considerable increase in the mobilization of savings as reflected in the savings to GDP ratio, which maintained an upward trend from 6.96% to 10.35% respectively. Thereafter, it trended downward to a historical low of 3.34% in 1996. (See figure 3.6). The savings figure, however improved to 13% of GDP in 2007 and reached a peak of 23% in 2009 before plummeting to 10.9% in 2010 due to the impact of the global financial crisis. The savings/GDP ratio has averaged 11.36% between 2010 and 2014. The poor savings mobilisation experienced in the 1990s can be attributed to the distress in the Nigerian banking system and consequent loss of public confidence (Nnanna, Englama, and Odoko, 2004).

**Credit to Private Sector (CPS)/GDP:** This is a profound measure of the role of banks in financing private corporations from the savings mobilised from the public. This is because this measure excludes credit to the public sector (unlike total



domestic credit), and so represents more accurately the role of financial intermediaries in channelling funds to private market participants for investment purposes (Umejiaku, 2011). Private sector credit as a proportion of GDP in Nigeria has been poor. In 1981, it was 9% and did not change much even until 2003 at 11%. Between 2004 and 2006 it remained around 12.5% on average. Following the banking consolidation, the ratio appreciated to 17.8% in 2007, reaching a peak of 37% in 2009, before declining to 18.97% on average between 2010 and 2014 (see blue line in figure 3.7).

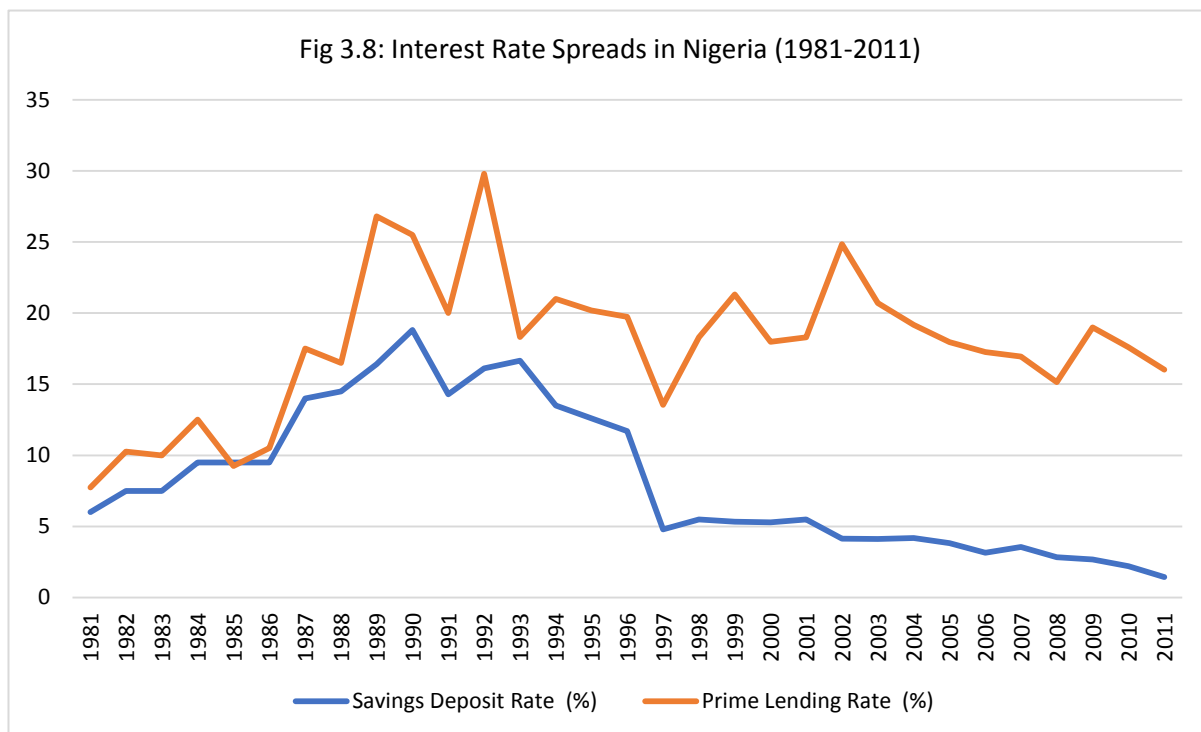


**Source:** CBN Statistical Bulletin (various years)

### ***(c) Banking Efficiency Indicator(s)***

**Interest Rate Spreads:** The spread between the prime lending rate (PLR) at which banks intermediate funds and the savings deposit rate (SDR) is a measure of banking efficiency. Figure 3.8 plots the trend of the weighted average deposit and lending rates of commercial banks in Nigeria from 1981 to 2011. As can be vividly seen, before 1986, interest rate spreads were narrow. However, following the liberalisation of the financial sector in 1986, the spreads between PLR and SDR started to widen and became even larger after the universal banking and consolidation reforms in 2001 and 2005 respectively, thus giving illuminating the weak efficiency of financial intermediation in Nigeria even with stronger and more capitalised banks. The situation reflects the presence of huge transaction costs and

market frictions following from the higher overheads in the monitoring and screening of borrowers (Hesse, 2007). Other factors responsible for the wide spreads include high rate of inflation and unremunerated reserve requirements, which makes banks increase the price of loanable funds to hedge against loss of real earnings.



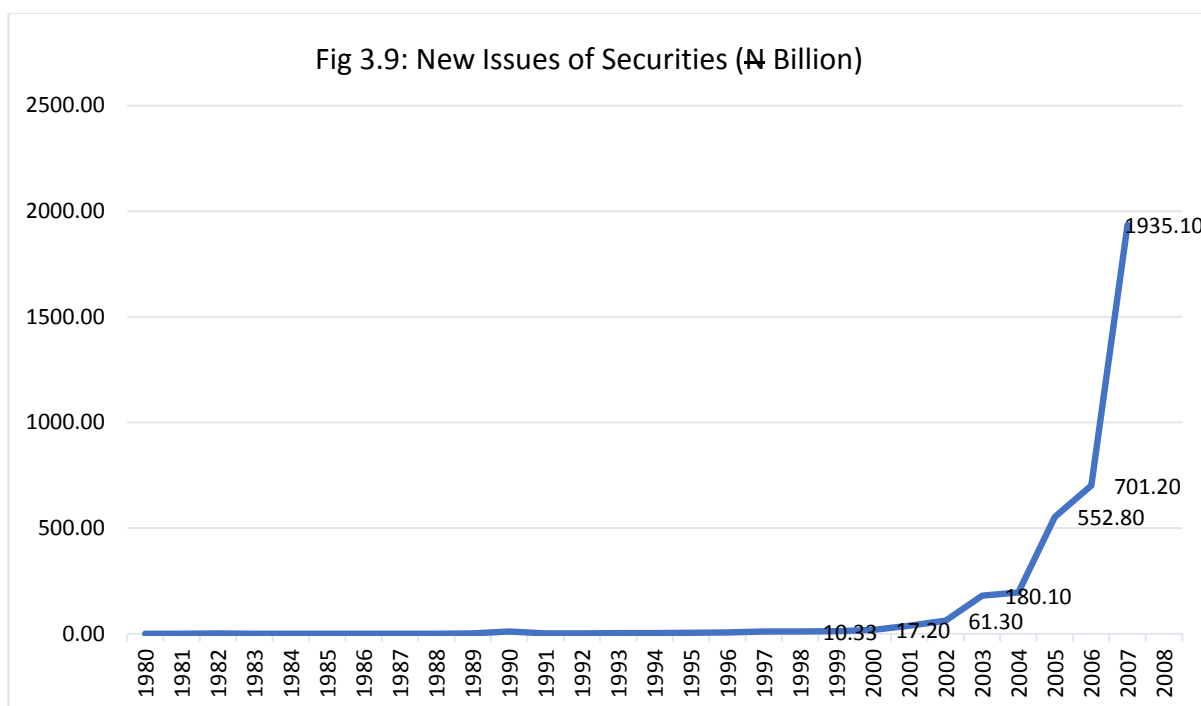
**Source:** CBN Statistical Bulletin (various years)

### 3.6.2.2. Market Development Indicators

#### (a) New Issues of Securities

The Nigerian capital market has supported economic growth over the years. It has allowed both government and private companies to raise new capital for long term investments. For instance, the value of new securities issued (equity and debt) increased, although with fluctuations, from ₦302.4 million in 1980 to ₦10.3 billion in 1998. Since 1999, the growth has been steady and speedy, rising from ₦12 billion to ₦701 billion in 2006 (See Figure 3.9). A total of ₦1.76 trillion was raised from the market between 1999 and 2006. (Al-Faki, 2007). This remarkable growth in new issues was as a result of the banking recapitalization exercise, as well as improved market infrastructure and increased public awareness. However, measuring new issues as a proportion of GDP is a more revealing indicator of market development; as it measures the relative value of new issues raised to the GDP. Though the ratio tends to increase over the past decade because of the financial reforms, for most years it has not been significant (less than 1). Capital formation through the Nigerian

stock market burgeoning, with the ratio being 3.8% in 2005 and increased to 8.3% in 2007.

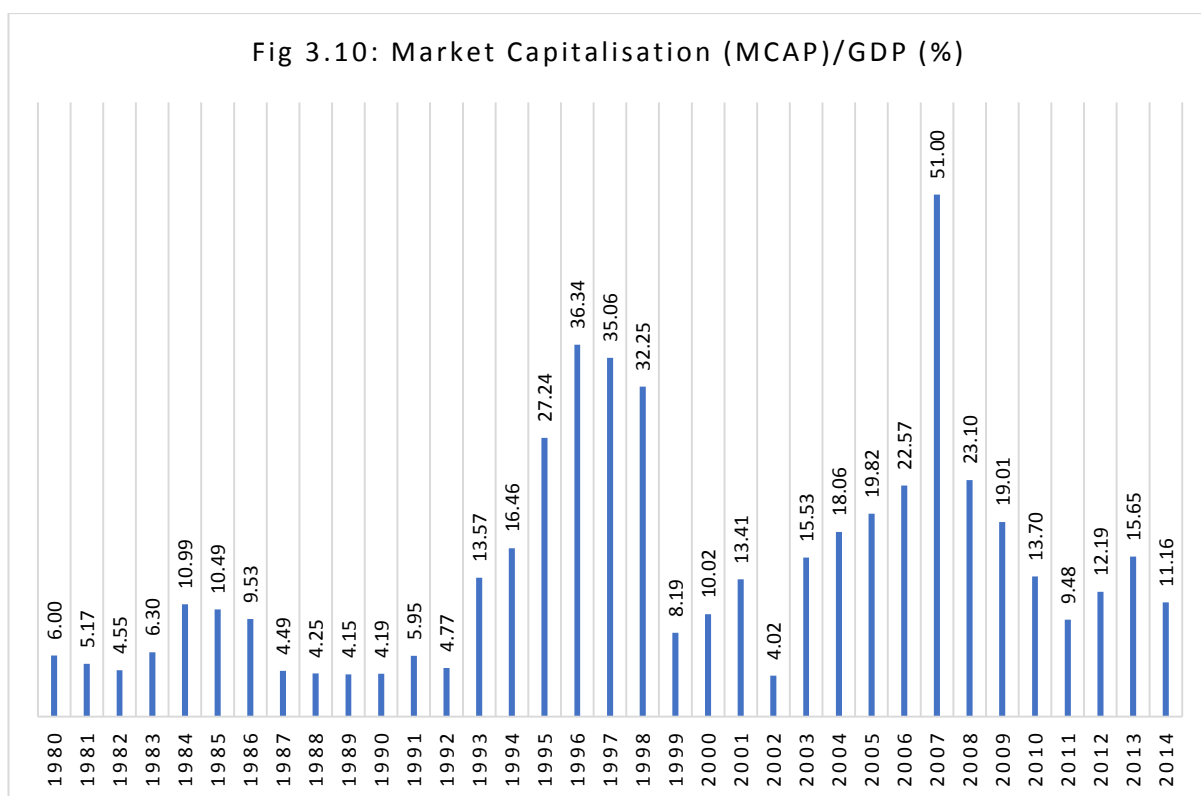


**Source:** CBN (2011)

### **(b) Market Size**

**Market Capitalization/GDP:** Market capitalisation is a measure of the size of the stock market, which is the aggregate value of listed securities on the exchange. This ratio measures the ability of an economy to mobilise capital and diversify risk (Levine and Zervos, 1998). Total market capitalization in Nigeria has appreciably grown from ₦4.46 billion in 1980 to ₦764.9 billion at the end of 2002. It hit the trillion mark in 2003, rising to ₦1.4 trillion. In 2004, market capitalization was ₦ 2.1 trillion and by 2007, it rose by more than six times to ₦13.3 trillion. In measuring the entire size of the stock market and its economic importance, market capitalization is normally expressed as a percentage of GDP. This ratio was on average about 4-11% between 1980 and 1992. However, market capitalisation improved remarkably between 1993 and 1998, averaging 26.8%, before nosediving to its previous trend. With the listing of more banks on the stock exchange and the floatation of initial public offerings following the banking recapitalization exercise, the ratio appreciated remarkably, moving from 18% in 2004 by almost three times to 51% in 2007. (See Figure 3.10). The Nigerian capital market experienced a shock following the 2008-2009 global crisis, which led to a general decline in investor's confidence, and the consequent offloading of investments and fall in the market capitalisation. The

Nigerian capital market lost over 70% of its value and has yet to recover from the crisis.



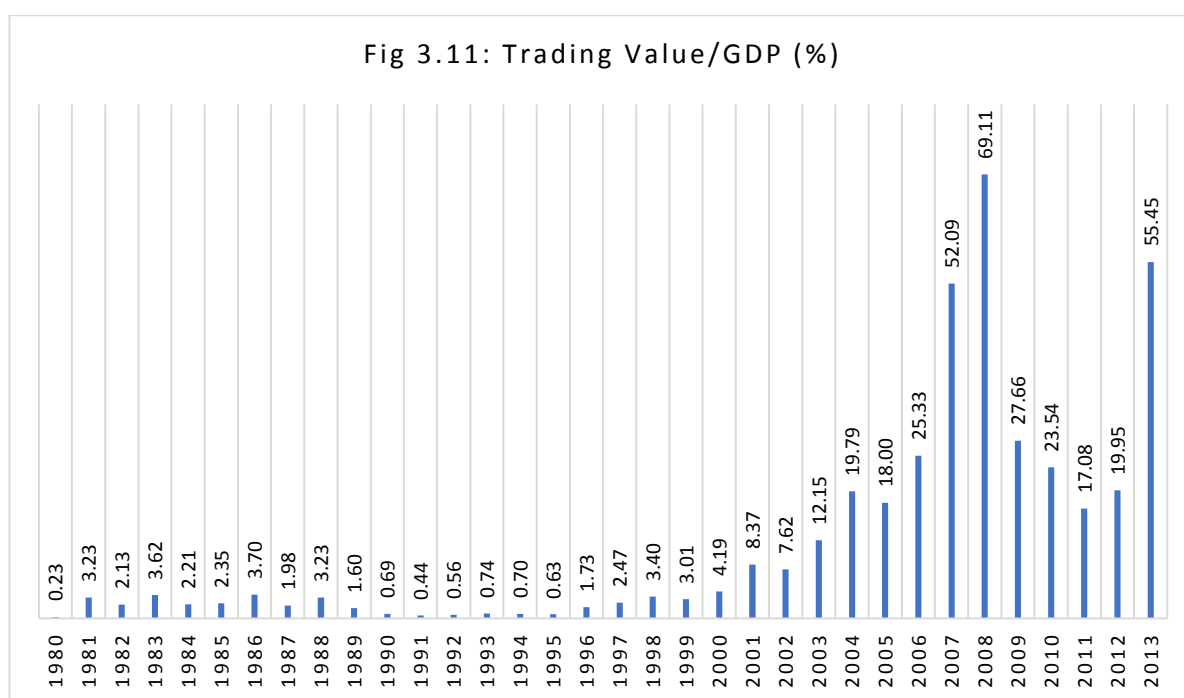
**Source:** CBN Statistical Bulletin (various years)

### (c) Liquidity

Liquidity refers to investor's ability to easily buy and sell securities. It is an important stock market development indicator because it measures how well a market can improve capital allocation and enhance the prospects for long-term growth (Levine and Zervos, 1998). This is because liquid markets make it possible for investors to alter their portfolio quickly and cheaply; thereby reducing the risk on their investments and enabling investments in projects that are more profitable though have a long gestation period (Osinubi, 2002). According to Levine and Zervos (1998), there are two measures of stock market liquidity: Trading value/GDP and Trading Value/Market Capitalisation (also known as turnover ratio).

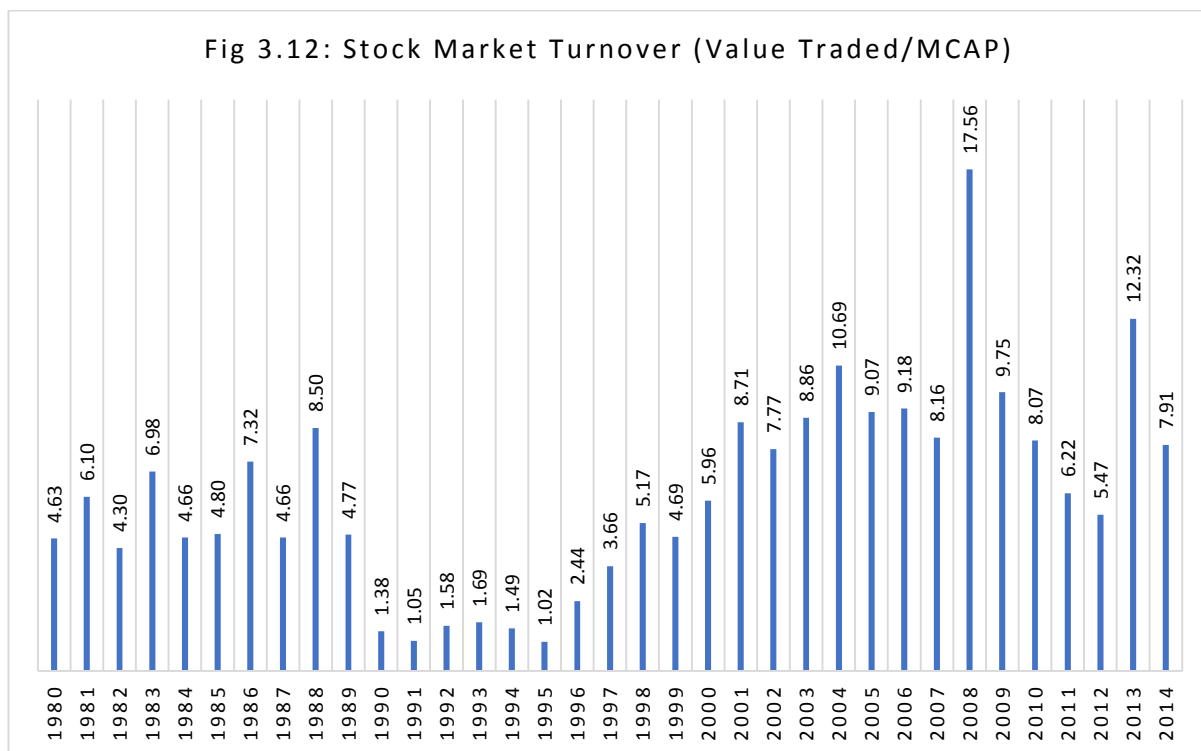
**Trading Value/GDP:** Trading value of securities as proportion of GDP is an indicator of market liquidity and measures the value of equity transactions relative to the size of the economy (Levine and Zervos, 1998). Figure 3.11 shows the value of equities traded on the Nigerian Stock Exchange as a percentage of GDP between 1980 and 2013. This ratio was less than 5% between 1980 and 2000. From 2001, the ratio started to rise reaching a peak of 69% in 2008. In the post-crisis period

from 2010-2013, the ratio averaged 24.5%. Prior to 1990, transactions at the stock exchange were dominated by government sector. For example, according to the CBN (2011), in 1981, government sector transactions were valued at ₦298.7 million as against just ₦6.1 million to the industrial sector. In 1985, it was ₦295.3 million to the government sector and ₦21.3 million to the industrial sector. By 1993, the share of industrial equities rose to ₦263.5 million, accounting for nearly 76% of total transaction value. Since then, industrial equities have dominated the market.



**Source:** CBN Statistical Bulletin (various years); researcher's calculations

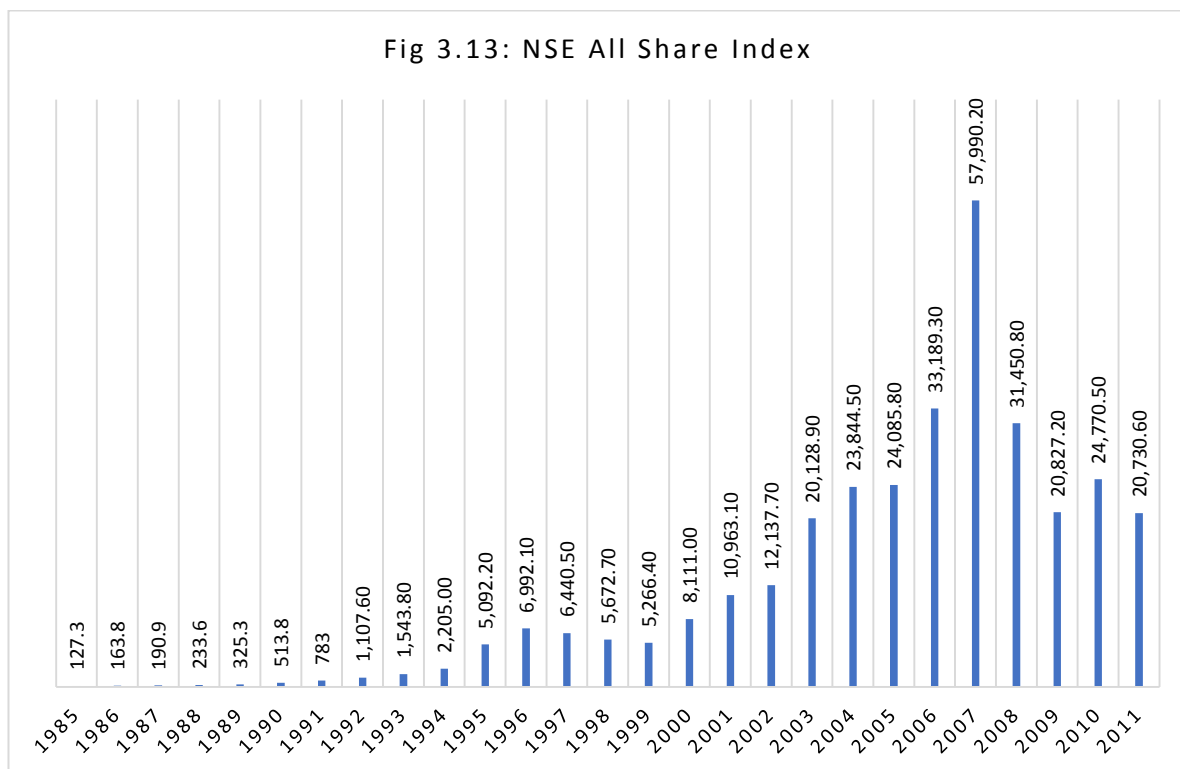
**Market Turnover:** This is derived by dividing the value of equities traded on the stock exchange by the market capitalization. In otherwords, turnover measures the value of trades in relation to the size of the market. High turnover is often used as an indicator of low transaction costs and market liquidity (Levine and Zervos, 1998). This ratio continues to hover between 1% and 10.6 %, averaging 5.5% between 1980 and 2007 (See Figure 3.12). The ratio reached a peak of 17.56% in 2008 and averaged 8.29% between 2009 and 2014.



**Source:** CBN Statistical Bulletin (various years); researcher's calculations

#### **(d) Stock Index:**

The All-share index of the Nigerian Stock Exchange (NSE) was established in 1985, in order to help to gauge the disposition of the market. The index witnessed an astronomic increase of 131% from 2,205 in 1994 when it closed at 5,092.2 in 1995. This increasing trend continued until 1998 when it declined from 6,440.5 in 1997 to 5,716.1 in 1998 and 5,266.4 in 1999. This was due to the backdrop of a series of upward adjustment in the Minimum Rediscount Rate (MRR), which diverted funds from the capital market, among other economic problems associated with the high interest rates in the economy (Osinubi, 2002). In percentage terms, the figures represent an annual percentage change of 37.3%, -7.9%, -11.2% and -7.9% in 1996, 1997, 1998 and 1999 respectively (see figure 3.13). The All-share index further appreciated remarkably from 8,111 in 2000 to a peak of 57,990.2 points in 2007 and then moderated downwards to 20,730 points in 2011. The rising trend in nearly all the market indices, particularly in relation to GDP, is an indication of the growing importance of the Nigerian capital market to the economy and the real sector. (Al-Faki, 2007).



**Source:** CBN Statistical Bulletin (various years); researcher's calculations

### 3.6.3. Financial Development and Economic Growth in Nigeria

Having examined key indicators of financial development in Nigeria, it is pertinent to review some empirical studies that have investigated the link between financial development and economic growth in Nigeria. Globally, several notable studies that have found strong evidence that better financial systems tend to accelerate the pace of economic growth and capital accumulation (e.g. McKinnon, 1973; Shaw, 1973; King and Levine, 1993a&b; Levine and Zervos, 1998; Beck and Levine, 2004). Within the Nigerian context, several studies have also attempted to investigate this link with varying submissions. In terms of banking activity development, Akpansung and Babalola (2011) examined the causal relationship between banking sector credit and economic growth in Nigeria over the period 1970-2008 using granger causality test and two-stage least squares estimation technique. Their results showed evidence of a uni-directional causal relationship from GDP to private sector credit (PSC) and from industrial production index to GDP. They also found that private sector credit impacted positively on economic growth over the study period. However, their analysis showed that lending rate inhibits economic growth. Thus, their paper concluded that there is need for more financial market development that channels more credit to the private sector with minimal interest rate to stimulate economic growth. In a similar study on the impact of private sector credit on

economic growth, Olowofeso, et al. (2015) applied cointegration test and accounted for structural breaks and endogeneity problems in previous works, given that the study period included times of economic distress. Their study confirmed a positive and statistically significant effect of private sector credit on output whereas increased prime lending rate was constraining growth. However, Udude (2014) found that, while the ratio of domestic credit to private sector to GDP had a positive relationship with GDP, the ratio of M2 to GDP (which is a measure of financial depth) had a negative relationship, contrary to economic expectations.

Balago (2014), using time series data from 1990-2009 examined the relationship between financial sector development indicators and economic growth in Nigeria and found that total market capitalization, banking sector credits, and foreign direct investment positively affected the real gross domestic product. Osinubi (2002) examined whether stock market promotes economic growth in Nigeria using the data from 1980 to 2000 and found that there is a positive relationship between economic growth and all the stock market development variables used. These included market capitalisation, new issues, value traded and turnover ratios. Aigbovo and Izekor (2015) also showed that economic growth promotes stock market development, but there is evidence of causality flowing from stock market development to economic growth. These results are consistent with theoretical postulation which suggests that stock markets play a key role in long term growth (e.g. Levine and Zervos, 1998; Beck and Levine, 2004). However, in a recent study on the impact of the Nigerian stock exchange on economic growth between 1981-2011, Azubuike (2017) found that market capitalisation, interest rate, total number of securities, number of deals and foreign direct investment (FDI) satisfy the economic *a priori* expectation while the total number of issues and the value of deals negates *a priori* expectation of a positive relationship between stock market development and economic growth. Suffice it to say that the number of issues and value of deals has been predominantly low in the 1980s and 1990s (see figure 3.8 and 3.10), which could potentially explain the contrary sign effect.

Some other studies found varying evidence of the short run and long-run impact of banking and stock market development indicators on economic growth. For example, Nwosu and Metu (2015) found that financial development exerts positive and significant impact on economic growth in the long-run, while trade liberalization variables exert negative impact on economic growth in the long-run indicating non-



competitive nature of non-oil domestic products in the international market. In the short-run, domestic credit is insignificant which indicates a dearth of investible funds in the economy. According to Nwosu and Metu (2015), there is also evidence that financial development policies influence economic growth in the long-run and not in the short-run. In another study, Madichie et al. (2014) found evidence that economic growth is negatively affected by financial development in the long run, but positively in the short run. This goes to show that the finance-led growth hypothesis in Nigeria is only valid in the short run. There is also evidence suggesting stability of both long run and short run relationship between financial development and the real GDP in Nigeria and the adjustment process to restore equilibrium after disturbance is effectively slow. They also find that causality runs from economic growth to financial development and there is no bi-directional causality between growth and financial development, which lends support to theories of demand-led economic growth. The study by Aigbovo and Izekor (2015) examined stock market and economic growth in Nigeria and revealed that turnover ratio (TR) positively and significantly affects economic growth both in the short-run and long-run while all share index (ASI) and total value of share traded (VLT) were significant in the short-run. All share index was observed to have a negative coefficient slope while value of share traded has a positive coefficient slope. According to their study, market capitalisation positively and significantly influenced economic growth only in the long-run.

Adeniyi et al. (2015) re-examined the relationship between financial development and economic growth in Nigeria and assessed the information content of non-linearities in the finance–growth nexus for Nigeria. They used annual data covering the period 1960–2010, they found that financial development had a negative impact on growth but found a sign reversal after factoring in threshold effects through the measures of financial development. This indicates some turning points in the finance–growth association. They also attempted to cleverly measure the impact of financial reforms on the Nigerian economy particularly in terms of economic growth and did not find any distinguishable effect between the pre- and post-reform periods, bringing to question the efficacy of financial system reforms. On this basis, they concluded that policy authorities in Nigeria should introduce broader and more far reaching structural reforms if the aim of sustained, inclusive and employment-generating growth is to be realised. Akpansung and Gidigbi (2014) also examined the implications of the financial reforms over time on sectoral credit allocations and economic growth and found that in spite of the drastic reduction in the number of

commercial banks during the reform period, credit allocation to the activity sectors (manufacturing, agriculture, mining & quarrying, oil and gas and communication) improved. However, their analysis showed that an increase in the amount of credit allocated to the mining & quarrying subsector enhanced economic growth, while a corresponding increase in credit allocation to the oil & gas subsector hampered economic performance. Thus, their research lends credence to the effectiveness of the CBN's banking sector reforms, which has, over the years, emphasised substantial credit allocation to the prioritized activity sectors. Moreover, the 2009 banking crisis in Nigeria and the fall in world crude oil prices in 2014 unearthed the dangers of credit concentration in the oil and gas sector, given the volatile nature of oil prices.

### 3.7. FDI, Financial Development and Economic Growth in Nigeria

Only very few studies have investigated the role of financial development in tandem with the FDI growth nexus in Nigeria. Akinlo (2004) found that financial development (M2/GDP ratio) has a significant negative effect on economic growth and attributed this to a high level of capital flight from the country. Saibu et al. (2011) also found that financial market development and FDI had negatively affected economic growth in Nigeria, while Nwosa et al. (2011) concluded that the causal effect of financial development and FDI on economic growth in Nigeria was statistically significant. Balago (2014) and Azubuike (2017) included FDI as a control variable while measuring the effect of financial development indicators on economic growth. However, these studies have failed to interact FDI with financial development to assess the role of financial development indicators in enhancing the relationship between FDI and growth. They have also failed to investigate whether a causal relationship exists between FDI and financial development itself. Thus, these represent the major contributions of the current study to the body of knowledge in the FDI-growth nexus in Nigeria.

### 3.8. Other Drivers of Economic Growth in Nigeria

Apart from FDI and financial development, which are the main variables of interest in this research, there are other drivers of economic growth in Nigeria and many of them turn out to be the determinants of FDI as reviewed earlier in this chapter. On a general level, Udejaja and Onyebuchi (2015) examined the determinants of

economic growth in Nigeria using the error correction model approach and found that while expenditure on education, domestic savings, financial deepening and trade openness positively determined economic growth, public infrastructure and FDI do not drive economic growth. This section reviews three strands of literature on the drivers of growth in Nigeria. First, it examines the factor input drivers of growth such as capital accumulation, labour and human capital, and technology. Second, it examines the macroeconomic policy drivers of growth - e.g. inflation, interest rates, exchange rates, government expenditure and trade openness. Finally, it examines the institutional drivers of growth, including infrastructural development, political stability, and institutional quality. These drivers of growth are not exhaustive but are only selected based on their relevance to the topic in question. These factors also form the basis for the selection of the control variables used in the empirical analysis in later chapters. However, not all variables eventually made it to the empirical analysis due to incomplete data and other estimation problems.

#### 3.8.1. Factor Input Drivers of Growth in Nigeria

As reviewed in chapter 2, the drivers of long term growth, according to the Cobb-Douglas production theory, Solow growth model and other economists are connected to at least three factor inputs, namely capital accumulation, increases in labour input & human capital, and knowledge or technological progress (Cobb and Douglas, 1928; Mankiw et al., 1992; Chien, 2015). A country's growth can be measured by estimating the proportion of growth that is accounted for by capital, labour and technology (Chien, 2015).

The first factor input, **capital accumulation**, is the real investment in tangible means of production, including investment in physical and financial assets that yield profit, interest, rent, royalties, fees or capital gains (Ewubare and Ogbuagu, 2015). In Nigeria, capital accumulation is measured by gross fixed capital formation (GFCF). This refers to the total value of the nation's physical capital stock, including investment in land improvements, plant, machinery, equipment purchases, and investment in social and economic infrastructure such as construction of railways, roads, schools, hospitals, offices, industrial and commercial buildings and private residential dwellings (Bakare, 2011; Ugwuegbe and Uruakpa, 2013). GFCF can be classified into investment groups: gross private domestic investment and gross public domestic investment. Gross private investment refers to investment in private

enterprises, while gross public investment comprises investment by government and public enterprises. Several studies have examined the impact of capital accumulation on economic growth in Nigeria. Ugwuegbe and Uruakpa (2013) examined the impact of capital accumulation (as measured by gross fixed capital formation) on economic growth and found that capital formation has a positive and significant impact on GDP growth between 1982 and 2011.

In another study to evaluate the impact of capital accumulation on economic growth in Nigeria, Ewubare and Ogbuagu (2015), using an endogenous growth approach, found no long run impact of gross fixed capital formation, and national saving on growth. Following a disaggregated approach to the measurement of capital accumulation and its impact on growth between 1970 and 2010, Baghebo (2013) found that, while domestic private investment has a positive and significant impact on economic growth, public investment impacted negatively and significantly on growth. The impact of foreign private investment on growth was also negative, but insignificant.

Their study revealed that macroeconomic policies may have been targeted at stimulating domestic investment, while incentives aimed at encouraging the inflow of foreign capital were inadequate. But, given that the period of Baghebo's (2013) study covered both the pre-liberalisation and post-liberalisation periods in Nigeria, it can be safely said that their study may not have captured the effects of the government's liberalisation policies aimed at attracting foreign investment from the mid-1980s into the 1990s. As noted earlier, the process of removing restrictive policies towards foreign investment started in 1986 with the introduction of SAP and then culminated in the establishment of the NIPC Act of 1995. Thus, it would be appropriate to disentangle the effect of liberalisation in shaping the relationship between foreign investment and economic growth in Nigeria.

The second factor input, **human capital**, is the quality of the labour force in terms of the abilities and skills of a country's human resources that can increase efficiency and productivity (Ogujiuba, 2013). Human capital development thus is the process of acquiring and increasing the number of skilled people who possess the necessary experience and education which are critical to a country's economic growth (Harbinson, 1973). Thus, investments in health, education and on-the-job training would be seen as human capital investments. Human capital in Nigeria is developed mostly in the education sector. The government makes use of public resources to

finance expenditures in the education sector such as teaching materials, books and other inputs in the formation of human capital. Thus, the input in the education sector comprises the time spent by the individual and the schooling expenditures incurred by the government. Ogujiuba (2013) examined the impact human capital formation has on economic growth in Nigeria and found that human capital investments in the form of capacity building and education at the primary and secondary school levels has significant impact on economic growth. While capital expenditure on education had an insignificant impact on growth. By contrast, Adawo (2011) found that, while primary school enrolment contributed positively to economic growth in Nigeria, secondary school and tertiary enrolment were found to dampen growth.

Their study suggests that basic education or literacy at the primary school level drives growth, while better measures of the quality of human capital at higher schooling levels are not associated with growth. In a recent study, Osoba and Tella (2017) examined the interaction effects of relationship between the components of human capital investment and economic growth in Nigeria for the period 1986-2014 and found that there is a positive and significant relationship between investment in healthcare and education on economic growth. Their findings imply that government's expenditure on health and education infrastructure causes growth by improving the quality of human resources in terms of a healthy and well-trained labour force.

Besides the traditional measures of human capital quality, population growth rate could also be seen as a measure of the availability or growth of labour input. Using an augmented Cobb-Douglas production function and error correction modelling framework, Essien (2016) examined the role of population growth (along with other measures of human capital development and capital accumulation) in Nigeria's economic growth performance between 1981-2014. The results established the fact that population growth has the potential to positively drive growth but underlined the fact that the positive benefits would depend, not only on the proportion of the entire population that is active, but on the quality of the labour force. In a similar study examining the causal relationship between population growth and economic growth between 1970-2013, Aidi, et al. (2016) showed that there was absence of causality between the two, suggesting that more investment in human capital was required to boost growth given the size of the population.

The third factor input, **technological progress**, is an economic measure of changes in economic output arising from innovation and technological advancements (Chien, 2015). Technological progress can be measured in several ways. For example, Nwosu et al (2013) measured technological progress in Nigeria using total factor productivity (TFP), while Sulaiman et al (2015) used R&D expenditure. Sulaiman et al. (2015) examined the impact of human capital and technology on economic growth in Nigeria over a 35-year period (1975-2010). Using secondary and tertiary enrolments as proxy for human capital and research and development (R&D) expenditure as a proxy for technology, their study showed that both human capital and technology had a positive and significant impact on economic growth. Thus, they concluded that encouraging more R&D expenditure can encourage innovations needed to drive sustained growth in Nigeria.

### 3.8.2. Macroeconomic Policy Drivers of Growth in Nigeria

This section focuses on the relationship between macroeconomic policy variables and economic growth with reference to Nigeria. Some of the most relevant factors in Nigeria include government expenditure, inflation rate, exchange rate, interest rate and trade openness. These macroeconomic factors also determine the level of FDI attracted to the country as discussed earlier and their relationship with growth would now be examined in detail.

Several economists have contested that there is a trade-off between **inflation** and growth. Earlier growth theories in the early 1950s show that low inflation could be positively related with growth. For example, Tobin (1965) found that an increase in inflation raises capital formation in the long run. This is popularly known as the Tobin effect. However, newer growth studies, especially using cross country data, show that higher levels of inflation have a negative effect and are detrimental to growth (e.g. Fischer and Modigliani, 1978; Paul et al, 1997; Smyth, 1994; Barro, 1995). Other aspects of the literature have argued that the negative relationship that exists between inflation and growth is not universal, but rather that growth falls after certain inflation thresholds (e.g. Bullard, 1995; Bruno and Easterly, 1998; Khan and Senhadji, 2001; Drukker et al, 2005). Within the context of Nigeria, the evidence is also mixed. Umaru and Zubairu (2012) in their study examined the impact inflation had on economic growth and development between 1970-2010. Their finding was that inflation had a positive impact on economic growth by boosting productivity,

output level and on evolution of total factor productivity. Olu and Idih (2015) also found a positive, but insignificant relationship between inflation and economic growth using data covering the period between 1980-2013. Chimobi (2010) looked at the existence of a relationship between inflation and economic growth with annual data for the period 1970-2005. The study found no cointegrating relationship between the two variables. With the use of Granger causality test however, the study established a uni-directional causality from inflation to growth. In Doguwa (2012), the issue of existence and level of inflation threshold in the relationship between inflation and growth in Nigeria was re-examined using different threshold point estimates. It was found and estimated that 10.5%-12%; is the threshold level of inflation above which inflation is inimical to growth in Nigeria. However, the study could not find evidence of the super-neutrality of money above this threshold, implying that the level of money supply and growth rate of money supply does have an impact on the real economy above this threshold.

Another macroeconomic policy variable that impacts on growth in an open economy is **exchange rate**. This is because it influences the flow of capital, goods and services in a country. It also exerts strong pressure on inflation, the balance of payments and other macroeconomic variables (Obi et al, 2016). The exchange rate is the ratio at which one currency exchanges for another currency, and thus determines the value of goods and services traded in one currency relative to another currency. The choice and management of an exchange rate regime is a crucial aspect of economic management since it determines the degree of competitiveness, stability and growth of the macroeconomy. Nigeria practiced a fixed exchange rate regime in the 1960s until 1986 when Nigeria liberalised its exchange rate following the adoption of the Structural Adjustment Programme (SAP). It is currently implementing a managed floating exchange rate within a band (Akpan and Atan, 2011).

Several studies have looked at the impact of the exchange rate regimes and exchange rate fluctuations on economic growth in Nigeria. Akpan and Atan (2011) used quarterly series for the period 1986 to 2010 to examine the possibility of a direct and indirect relationship between exchange rates and GDP growth. They found no evidence of a strong direct relationship between changes in the exchange rate and output growth. Instead, they found that economic growth in Nigeria has been directly influenced by monetary variables. Similarly, Lawal et al (2016)

investigated the impact of exchange rate fluctuation on economic growth using data from 2003-2013 and found that fluctuations in exchange rate has no effect on economic growth in the long run; though a short run association exists between the two.

However, in contrast to these studies, Iyeli and Utting (2017) examined the influence of exchange rate volatility and other macroeconomic regressors (oil revenue, balance of payments and inflation) on economic growth between 1970-2011 using cointegration techniques and found that exchange rate volatility and oil revenue contribute positively to GDP in the long run. As both studies by Akpan and Atan (2011) and Lawal et al (2016) were during the liberalised exchange regimes, their results suggest that the liberalised exchange rate regime may in fact have no implication for growth as opposed to the combined period in which the study by Iyeli and Utting (2017) found a positive long run association.

In another related study using the full period from 1970-2014, Obi et al (2016) found that economic growth was spurred in the regime periods that exchange rate was deregulated as against the whole period and the fixed exchange rate regime which they found to have constrained growth. In other words, they found that real exchange had a positive relationship with growth during the liberalised exchange rate era and a negative relationship with growth during the whole period and during the fixed exchange rate regime. Hence, the evidence of the effect of exchange rate regimes on economic growth in Nigeria is ambiguous and not clear-cut.

The effect of **interest rate** on the economic growth of any country cannot be over-emphasised. Interest rates are important elements in transmitting monetary policy actions to economic activities. The trend of interest rates determines largely, the investment activities that take place in any economy and hence the level of economic growth. For example, investment depends upon the interest rate in obtaining funds from the financial market while economic growth largely depends on the level of investment (Ajayi et al, 2017). Just like exchange rate, the interest rate regime in Nigeria can be divided into two periods: the period of extreme regulation from the 1970s to the mid 1990s (which focused on lending to preferred sectors at preferential rates) and a period of deregulation or market-determined interest rate, from 1996 onwards when the cap on interest rate was lifted and the flexible exchange rate regime commenced (Ajayi et al, 2017; Maiga, 2017). However, the Nigerian economy under a market-based approach, has witnessed



enormous interest rate volatility and this made the Central Bank of Nigeria (CBN) to introduce indirect instruments of monetary policy to control interest rates and the rate of inflation (Maiga, 2017). On the impact of interest rates on economic growth in Nigeria, Ajayi (2017), using data from 1980-2012, found that interest rate has no significant impact on growth, while Babalola et al (2015), using data from 1981-2014, found that interest rate has a negative impact on growth and does not Granger cause economic growth. Thus, the relatively high level of interest rates and interest rate volatility in Nigeria may have discouraged investments and hence growth.

**Government size** (measured by expenditure on government consumption as a proportion of the GDP) is another variable that many studies have found to impact on economic growth. Theoretically, one point of view suggests that a larger government size will probably impact negatively on economic growth because, for instance, government activities are often conducted inefficiently, and the regulatory process imposes extreme burdens and costs on the economic system (Landau, 1983; Dar and AmirKhalkhali, 2002).

In addition, many of government's fiscal and monetary policies tend to twist economic incentives and lower the productivity of the system (Dar and AmirKhalkhali, 2002). On another hand, there exists some school of thoughts, who believe that government should play a critical role in the process of economic development and therefore argue that a larger government size is probably a more powerful engine of economic development (e.g. Ram, 1986; Barro, 1990). This strand of literature also argues for the role of the government intervention in the harmonization of conflicts between private and social interests, for example, by improving inefficiencies that arise from market failures and safeguarding an increase in productive investment and providing a socially optimal course for growth and development (Ram, 1986).

With respect to empirical studies, Dar and AmirKhalkhali (2002) examined the role of government size in explaining the differences in economic growth rates of 19 OECD countries over the 1971–1999 period using a random coefficients model. They found that in countries where government size is larger, total factor productivity growth and the productivity of capital were weaker in average terms.

Similarly, using cross sectional data for 104 countries, Landau (1983) concluded that a larger government size, proxied by the share of government consumption in

GDP, depresses growth of per capita income. On the other hand, using cross section and time series data for 115 countries during the period 1950-1980, Ram (1986) found that the overall impact and marginal externality of government size on growth is positive. Barro (1990) found that productive government spending is positively associated with an increase in growth and savings rate while non-productive government spending has the opposite effects. In a recent study, Asimakopoulous and Karavis (2016) examined the nature of the relationship between government size and economic growth with a large panel dataset of developed and developing countries and using threshold analysis. Their results show that the optimal level of government size that maximises economic growth is 18.04% for the full sample; 19.12% for developing and 17.96% for developed countries. They also found an asymmetric impact of government size on economic growth in both the developed and developing countries around the estimated threshold.

Within the context of Nigeria in particular, several studies have also examined the relationship between government expenditure and economic growth. Danladi et al (2015) examined the long run relationship and the direction of causality between government expenditure and economic growth in Nigeria using data from 1980-2013 and found that government spending positively and significantly explains economic growth. However, their result shows that the recurrent component of government expenditure significantly explained more of the growth than capital expenditure<sup>12</sup>, implying that more productive expenditures (such as infrastructural spending) can induce greater economic prosperity. Ihenacho (2016) also conducted a similar disaggregated study of the relationship between public expenditure and economic growth in Nigeria over the liberalised period of 1986-2014 and found that recurrent expenditure is the main driver of economic growth in Nigeria while there is a negative and significant long run effect of capital expenditure on economic growth.

However, controlling for non-oil revenue, the results of his study shows the coexistence of a negative and significant long run relationship between economic growth and recurrent expenditure; with a positive short run relationship, accentuating the twin effects of recurrent expenditure on economic growth in

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<sup>12</sup> Government expenditure in Nigeria can be categorised into two broad classes: recurrent expenditure and capital expenditure. Recurrent expenditure are government expenses on administration such as wages, salaries, interest on loans, maintenance and so on, whereas capital expenditure are expenses on capital projects like roads, airports, education, telecommunication, power transmission, etc. (Danladi et al, 2015).

Nigeria. These studies can be contrasted with that of Deverajan et al (1996) who earlier studied the relationship between government expenditure composition and economic growth for a group of 43 developing countries and found a significant negative association of capital expenditure with growth of real GDP per capita; while recurrent expenditure has a positive effect. Therefore, ostensibly productive expenditures, when used in excess, could turn unproductive. The implication of these results is that governments of developing countries (Nigeria inclusive) have been misallocating public expenditures to favour current expenditures at the expense of capital expenditures.

Following a disaggregated sector analysis approach, Nurudeen and Usman (2010) examined the effect of government expenditure on economic growth using data from 1970-2008 and found that total capital expenditure on economic growth, total recurrent expenditure, and government expenditure on education have a negative effect on economic growth. By contrast, rising government expenditure on health, transport and communication results in an increase in economic growth. The latter finding is consistent with that of Easterly and Rebelo (1993) who also found that investment in transport and communication is consistently correlated with growth, further strengthening the view that the impact of infrastructural spending on economic growth could be more visible than other non-productive expenditures.

In this regard, a recent study by Babatunde (2018) used both primary and secondary data on reported annual government spending on selected infrastructure in Nigeria between 1980-2016 to investigate the impact of infrastructural spending on economic growth, and found that government spending on education and health, transport and communication infrastructure has significant effects on economic growth. However, spending on agricultural and natural resources infrastructure showed a significant negative effect on economic growth in Nigeria.

A fifth macroeconomic policy factor driving growth is **trade openness**. As defined earlier, trade openness is a measure of the degree to which an economy is open and non-restrictive to international trade. Trade openness is generally measured using two indices: (1) measures of trade volumes and (2) measures of trade restrictions. Trade volumes are usually measured using the proportion of GDP accounted for by imports and exports, while trade restrictions are measured using tariff and non-tariff barriers to trade. The linkage between trade openness and

growth can be explained with the theory of comparative advantage, which posits that international trade leads to a more efficient use of a country's resources through the importation of goods and services that are otherwise too costly to produce within the country and export of those goods for which a country has comparative advantage. Therefore, it is perhaps safe to conclude that imports are as important as exports for economic efficiency and performance. In fact, they (import and export) should be considered complementary to each other rather than alternatives.

However, some studies hold an extreme view of this (e.g. Rodrik, 1999), arguing that the benefits of trade openness lie on the import side rather than the export side. Endogenous growth theories (e.g. Rivera-Batiz and Romer, 1991 and Grossman and Helpman, 1991) also argue that trade policies have implications for long run growth through a number of channels, including facilitating access to bigger markets, the transmission of technologies between trading partners and encouraging the development of R&D through increased returns to innovation.

Further, trade openness leads to countries specialising in goods and services they have comparative advantage through factor endowment, thus leading to a better allocation of resources. Several studies have examined the relationship between trade openness and growth. There is almost a general consensus in the literature that outward-oriented economies consistently record higher growth rates than inward-oriented countries and that there is positive association between trade flows and growth (Yanikkaya, 2003). However, evidence is mixed as to the effect of trade policies on growth. In a cross-country analysis of developing countries for the period 1960-1987, Harrison (1996) found a positive and strong relationship between various measures of trade openness and growth. Yanikkaya (2003) performed cross-country regressions with a panel of over 100 developed and developing country observations from 1970 to 1997 and found that there is a positive and significant relationship between trade openness (as measured by trade volumes) and growth.

However, their estimation results for trade barriers are in contrast with conventional view on the growth effects of trade restrictions, suggesting an adverse association between trade barriers and growth. In contrast to these studies, Eris and Ulasan (2013) investigated the robustness of the relationship between openness to trade and long-run economic growth using a cross-country sample over the period 1960–

2000 and found no evidence that trade openness is robustly and directly correlated with economic growth in the long run. Rather, they found evidence that showed that macroeconomic uncertainties such as those induced by excess government consumption and high inflation as well as economic institutions are key factors that influence economic growth. Similarly, Adhikary (2011) found that trade openness exerts negative but diminishing influence on GDP growth rates, while the level of FDI and capital formation are found to have a significant effect on changes in real GDP in Bangladesh.

The relationship between openness and growth in Nigeria is particularly relevant given the import dependent structure of the Nigerian economy. Unlike other oil producing nations like UAE, Saudi Arabia and Russia, Nigeria has not been able to diversify its export-base. The oil and gas industry/sector continues to dominate almost all merchandise exports and contributing over 70% of its total foreign earnings (Nduka, 2013). Moreover, Nigeria has implemented different exchange rate regimes, which might have implications for its trade-growth nexus (Olufemi, 2004). These have led researchers to examine the impact of openness on growth in Nigeria and the potential implications for the structure of the economy. Olufemi (2004) examined the causality between different measures of trade openness and economic growth in Nigeria using data from 1970-2000, and found a unidirectional relationship running from growth to openness. This means that an increasing level of openness to trade will be beneficial depending on the level of economic growth.

However, Nigeria's economy has been more open since 1986 when SAP was implemented as shown by increasing levels of trade as a proportion of GDP (see Olufemi, 2004). This led to further studies on the impact of trade liberalisation on growth in Nigeria. Nduka et al (2013) examined and compared the causal relationship between trade openness and economic growth in Nigeria in the pre-SAP (1970-1985) and post-SAP (1986-2011) periods to disentangle the effect of trade liberalisation on the trade-growth nexus. Their results show a uni-directional causality flowing from economic growth to trade openness without a feedback effect in the pre-SAP period (growth-led trade).

Whereas there is the existence of a bi-directional causality between trade openness and economic growth in the post-SAP period (growth-led trade and trade-led growth respectively). However, their results suggest that economic growth causes openness more in the post SAP period, implying that the opening up of the economy

to international trade has led to more economic growth, which in turn is facilitating more trade. This thus supports the general notion that outward-oriented countries have better and more consistent growth rates than inward-oriented countries.

### 3.8.3. Institutional Drivers of Growth in Nigeria

The institutional drivers of growth refer to other factors that enhance the quality of production or productivity of other factors of production. Examples include: infrastructure development (e.g. energy supply, access to markets, ports, communication facilities, etc), the political environment, and measures of institutional quality (e.g. the level of corruption, bureaucracy and the rule of law for enforcement of property rights and contracts).

However, only one of these factors is examined in detail - infrastructural development - as data on other variables are either unavailable or incomplete to conduct any meaningful analysis in the current study. For example, the political stability index developed by the world bank measures perceptions of the likelihood that the government of Nigeria will be disrupted or overthrown by violent or unconstitutional means, including terrorism and politically motivated violence (Kaufmann et al, 2011). The index is an average of several other indexes from the Political Risk Services, Economist Intelligence Unit, and the World Economic Forum among others. But data on this variable is incomplete and has been excluded from the empirical analysis. In addition, the rule of law index captures opinions of the extent to which agents in Nigeria have confidence in and obey the rules of society, and in particular the courts, the police, the quality of contract enforcement, property rights, as well as the likelihood of violence and crime (Kaufmann et al, 2011). Again, data on this variable is incomplete and has been excluded from the analysis.

The level of **infrastructure development** could affect economic growth. As noted earlier, good infrastructure tend to increase the productivity of investments and reduces operating costs of production and this is likely to attract foreign investments (e.g. Wheeler and Mody, 1992; Asiedu, 2002) which will lead to growth. Infrastructure development is often measured by the availability and reliability of telecommunication facilities, road and rail networks and power transmission. Here, we examine one known measure of infrastructure development in Nigeria, electricity consumption, which has been used in various studies due to data availability. Although Nigeria is a major net exporter of crude oil and flares more than 80% of its

gas reserve, shortage of energy supply is so marked that power interruptions and fuel shortages have become normal. This can be attributed to endemic corruption, inefficient management, lack of spare parts and manpower shortage (Akinlo, 2009). In fact, between 1980-2005, electricity generated has fallen short of electricity consumed creating huge energy losses of between 32-43% in Nigeria (*ibid*, p. 683). A number of studies have examined the relationship between electricity consumption and economic growth in Nigeria. Akinlo (2009) examined the causality relationship between energy consumption and economic growth in Nigeria during the period 1980-2006 and found a cointegration between real GDP and electricity consumption and there is only a unidirectional causality flowing from electricity consumption to real GDP.

However, after decomposing the trend and the fluctuation components of both variables, the results showed that there is cointegration between the trend and the recurrent components of the two series, which suggests that the relationship between both variables may be related to the business cycle. Iyke (2015) also examined the causal link between electricity consumption and economic growth in Nigeria for the period 1971-2011 and found that there is a distinct causal flow from electricity consumption to economic growth both in the short run and long run. Therefore, the implications of these findings show that investing more in electricity generation and reducing the inefficiency that exists in the supply and use of electricity can help stimulate economic growth in Nigeria. Apart from electricity consumption, the rapid rise in mobile phone subscriptions in Nigeria and Africa in general, could also be seen to influence economic growth. Theoretically, some studies have argued that telecommunications tend to increase productivity, improve employment opportunities and facilitate the work of many occupations and thus contributes to economic growth (e.g. Castells et al, 2007; Carmody, 2012). In addition, some argue that telecom is an important input that enhances the factor productivity of the traditional inputs such as land, labour and capital (e.g. Isaksson, 2010).

With respect to developing countries (including Nigeria), Cleeve and Yiheyis (2014) analysed the impact of mobile telephony on economic growth in Africa using a panel of 36 African countries over the period 1995 to 2010 and found evidence to support the view that increased mobile penetration contributes to the growth rate of real GDP. However, they could not find any evidence to suggest that increase in mobile phone usage significantly influenced GDP growth. As mobile phones effectively entered the Nigerian market in the early 2000s, data on mobile phone subscriptions

in Nigeria is not adequate to conduct any analysis given that the period of the current study dates back to 1970. Hence, this variable has been excluded from the list of variables in the empirical analysis.

### 3.9. Chapter Summary

This chapter has provided a detailed background on the subject of FDI, financial development and economic growth within the context of the Nigerian economy and economic and financial reforms. The first part of this chapter examined the determinants of FDI flows to Nigeria, analysis of FDI flows to Nigeria as well as the impact of FDI on economic growth. Nigeria has maintained its position among the top five destinations of FDI in Africa since the 1970s. The factors that determine the flow of FDI to Nigeria are numerous and they range from the large size of the market, to availability of natural resources, to considerable degree of trade openness, and good return on investment.

However, areas of significant challenge still remain the level of infrastructure development, political risk, macroeconomic instability, human capital and quality of institutions, among other factors. The trend analysis of FDI flows to Nigeria showed that the structure and flow of FDI into the country was influenced strongly by the regulatory regime, which was predominantly restrictive between 1970 and 1994, and later liberalised in 1995 with the promulgation of the Nigerian Investment Promotion Commission Act. Although there has been some diversification into other sectors like manufacturing and services sector in recent years, FDI in Nigeria has traditionally and predominantly been concentrated in the extractive industries (i.e. oil and gas, solid minerals, etc). The brewery, telecoms, miscellaneous services and retail industries are some of the major industries that have attracted inward FDI in recent times besides oil and gas.

Most studies that examined the economic impact of FDI on economic growth found a positive long run relationship between FDI and GDP, while causality between FDI and growth showed mixed evidence. In terms of sectoral impact, FDI was shown to have had more positive impact in sectors that have received FDI the most, namely manufacturing and telecoms.

The second half of this chapter has examined financial development in Nigeria, including the liberalisation and consolidation of the financial sector, which on the balance, improved several banking and market indices. The consolidation of the



banking sector, for example, reduced the number of banks significantly, almost doubled the number of bank branches, thrusted total banking assets, bank credit to private sector, stock market capitalisation and trading values to unprecedented levels. This chapter also presented an account of several studies that examined the relationship between financial development indicators and economic growth, with most of the studies finding a positive impact though the results was mixed on whether this impact was in the short run or long run or both.

One of the main critiques of these studies, however, is that nearly all the studies that have looked at financial development and economic growth failed to account for structural breaks in considering structural changes in the financial time series data, which means that many of these studies may have reported spurious or biased results. Studies that have examined financial development with FDI are few and most notably, these studies have failed to interact FDI with financial development to assess the role of financial development indicators in enhancing the relationship between FDI and growth. They have also failed to investigate whether a causal relationship exists between FDI and financial development itself. This study is an attempt to fill both these gaps.

Finally, a review of the literature also shows that apart from FDI and financial development, other drivers of growth in Nigeria include factor input drivers such as capital accumulation, labour and human capital, and technology, macroeconomic drivers such as inflation, interest rates, exchange rates, government expenditure and trade openness, as well as institutional drivers such as infrastructural development, political stability, and institutional quality. These factors are similar to the determinants of FDI in Nigeria and thus, help provide a more complete framework for understanding the relationships between FDI and growth.

## Chapter 4

### Methodological Framework

#### 4.1. Introduction

This chapter lays out the methodological framework for the study in terms of epistemology, data and measurement variables, description of econometric methods and specification of relevant models. As stated in earlier chapters, this thesis empirically investigates the relationship between FDI and economic growth in Nigeria, with specific reference to the role of financial development in shaping this relationship. In addition, this study examines the direction of causality between FDI and economic growth and between FDI and financial development. Thus, the study attempts to provide answers to three research questions:

1. Does FDI promote economic growth generally in Nigeria?
2. What role does financial development play in enhancing the impact of FDI on the domestic economy?
3. Is there any causal relationship between FDI and financial development and between financial development and growth?

The setting out of the research questions of any study as above complies with the pragmatic stance or philosophical position that specifying research questions are key to the achievements of the aim of any study. Thus, section 4.2. reviews several epistemological issues, critiques, and positions that are relevant to the study on FDI and economic growth as with many other studies in business and social sciences. Next, section 4.3 examines the sources of data and describes the variables used in the study, including the measures of FDI, financial development and economic growth, and all the control variables to be used in the growth regressions. Section 4.4 describes the econometric methods used and lays out the hypotheses of the study and the relevant theories and assumptions that are made. The key econometric models used in this study are Unit root and Co-integration tests, Granger Causality test, and ordinary least squares (OLS). Section 4.5 specifies all the econometric models that would be run and analysed in this study and lays out the procedure for interpreting the results of the regressions in a systematic fashion. Section 4.6 summarises and concludes the chapter.

## 4.2. Epistemology

This section discusses the epistemological issues, critiques, and positions that are relevant to this research topic and why they are so important in studies on business and social sciences. Epistemology addresses the concern and question of what is (or should be) to be regarded as acceptable knowledge within a particular discipline. Particularly, a central issue in this regard is the question of whether or not the social world can and should be studied according to the same ethos, principles and procedures used in studying the natural sciences. The position that confirms the importance of imitating the processes of natural sciences is customarily associated with an epistemological position branded as positivism. First, this section reviews all relevant philosophical positions and majors on **positivism**, **pragmatism** and **empiricism** because they are the most relevant to the topic under consideration. It also considers any relevant philosophical criticisms that may be made with respect to the underlying arguments contained in the research or research methods used and how these can be guarded against or, at best, managed to enhance the reliability and validity of the propositions or research findings. The key issues are those involving quantitative research methods and relate to measurement, causality, generalization and replication.

### 4.2.1 Philosophical Approaches to the Study

The main philosophical positions reviewed in this study are: positivism, interpretivism or constructionism, realism, pragmatism and empiricism.

#### 4.2.1.1. *Positivism*

Positivism is an epistemological standpoint that supports the application of the processes of the natural sciences to the study of social reality and even beyond. According to Bryman (2008), positivism entails the following principles:

1. Science must (and presumably can) be conducted in a way that is objective
2. Only phenomena and hence knowledge confirmed by the senses can genuinely be warranted as knowledge (the principle of phenomenalism)
3. Knowledge is arrived at through the gathering of facts that provide the basis for laws (the principle of inductivism)

4. The purpose of theory is to generate hypothesis that can be tested and that will thereby allow explanations of laws to be assessed (the principle of deductivism)
  5. There is clear difference between scientific statements and normative statements and a belief that the former is the true domain of the scientist.
- This last principle is implied by the second because the truth or otherwise of normative statements cannot be confirmed by the senses.

The doctrine of positivism is extremely difficult to pin down, as different authors perceive its principles about the relationship between theory and research in different ways. For example, positivism involves both elements of an inductive approach (principle 3) and a deductive approach (principle 4). Many believers of positivism affirm that world knowledge or social phenomena should be acquired through direct observation (induction) and not deduced from abstract propositions. Therefore, evidence based on direct observation and collected in an objective and unbiased way are key principles of positivism (Ritchie and Lewis, 2003).

#### *4.2.1.2. Interpretivism/Constructivism*

Interpretivism is an epistemological stance, which needs the social scientist to understand the subjective meaning of social action. (Bryman, 2008:694). The interpretivist approach is also known as *constructivism*; which describes the way in which people relate and create their own subjective meaning based on their individual expectations, experiences and memories (Blaikie, 2009). *Interpretivism* suggests, “it is necessary for the researcher to understand differences between humans in our role as social actors” (Saunders et al., 2007:115). Unlike positivism, advocates of Interpretivism argue that there are other means of studying about the world rather than observing directly; and that knowledge goes beyond basic empirical enquiry. Therefore, they believe that humans should be able to interpret of what their senses tell them. They emphasize that ‘understanding’ and ‘perceptions’ can shape our way of thinking and interpretation of particular experiences or events. (Ritchie and Lewis, 2003:6-7). The *social constructionist view*, which follows from interpretivism emphasizes that it is imperative to explore the personal meanings inspiring the actions of social actors for the researcher to be able to understand and interpret these actions. According to Hatch and Cunliffe (2006), interpretivist researchers aim to create their own realities by working

alongside others and to understand different perspectives and hence apply that knowledge in interpreting their experiences.

#### *4.2.1.3. Realism*

Realism is another epistemological standpoint, which supports scientific enquiry. The principle of realism is that whatever the senses shows us as reality is the truth; and that objects have an existence that does not depend on the human mind (Saunders et al., 2007). The theory of realism is that there is a reality that does not quite depend on the human mind. In this regard, realism does not support idealism, which is based on the theory that only the mind and its contents exist. Realism is concerned with the nature of reality and raises questions about researchers' assumptions about the way the world operates and the commitment held to particular views. Realism is a branch of epistemology that is similar to positivism in that it follows a scientific approach in developing knowledge. There are two major forms of realism: critical realism and empirical or direct realism (Saunders et al., 2007; Bryman, 2008). Critical realism is a specific form of realism whose philosophy is to recognise the reality of the natural order and the discourses and events of the social world. It believes that we are only able to understand (perhaps change) the social world if we identify the structures at work that produce those discourses and events. Empirical realism simply asserts that, by using appropriate methods, we can understand reality.

#### *4.2.1.4. Pragmatism*

The pragmatic stance submits that the research question is the most important determinant of the research philosophy adopted. Hence, providing answers to the research question will help achieve the aim of the study. Pragmatism holds the view that one approach may answer the questions better than the other approach. Additionally, if the research question does not suggest explicitly that either a positivist or interpretivist philosophy is assumed, this confirms the pragmatist's view that it is absolutely possible to work with the two philosophies. In other words, pragmatism supports the idea of *mixed methods*, implying that both qualitative and quantitative methods are possible, and even possibly highly appropriate within one study. In Tashakkori and Teddlie (1998), it is suggested that it is more appropriate for the researcher in a particular study to think of the adopted philosophy as a continuum rather than contrary positions. In their words, "at some points the knower and the known must be interactive, while at others, one may more easily stand apart

from what one is studying” (pp. 26). Tashakkori and Teddlie (1998) contend that pragmatism appeals intuitively largely because it avoids the researcher engaging in what is seen as rather pointless debates about such theories as truth and reality. They are of the view that the researcher should study what is of interest and value to him or her and that the study should be conducted in the different ways in which the researcher considers appropriate and in ways in which the results can be used to bring about positive contributions.

#### *4.2.1.5. Empiricism*

According to Bryman (2008:9), the term “empiricism” is used in several different ways, but two stands out. Firstly, it is used to signify a general approach to the study of reality that implies that only knowledge acquired through the senses and experience is acceptable. This implies in other words that ideas can only be considered knowledge after they must have been subjected to the rigours of testing. Secondly, it refers to a belief that the gathering of ‘facts’ is a legitimate aim in its own right. This second meaning is often referred to as ‘naïve empiricism’. Empiricism has some bearing with pragmatism in the sense that both believe that research should be accustomed by and focused towards research questions that arise out of the review of the literature. Data collection and their analysis are then focused on the resolution or clarification of the research problem or issue that has been identified at the beginning. The literature acts as a substitute for theory. In many cases, theory is implicit or hidden in the literature (Bryman, 2008).

Having reviewed all major philosophical positions, the relevant positions to this research are positivism, pragmatism and empiricism, given that the research uses quantitative (statistical) methods to test relevant relationships between FDI and economic growth and whether financial development interacts with FDI to enhance capital accumulation and economic growth. These three categories are further explored in relation to the current research in section 4.2.2. below.

#### *4.2.2. Deductive Reasoning and Quantitative Research in Relation to the Study*

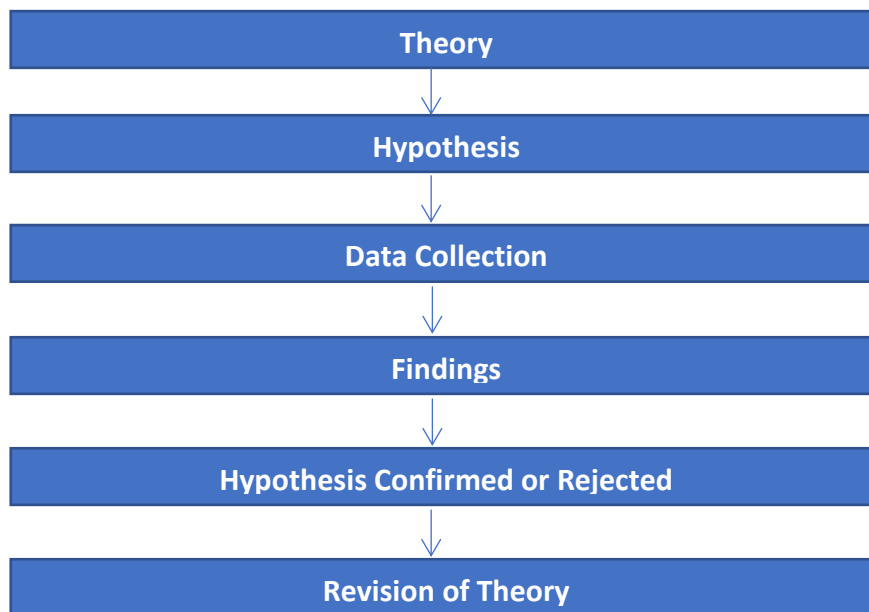
Empiricism and positivism as philosophical positions support the process of deductive reasoning, which is the research approach used by this study. Pragmatism, on the other hand, places emphasis on investigating a research question with the aim of making positive contribution to knowledge, which is the

overriding objective of the chosen research topic. In line with the research aim of this study, which is to ascertain whether the development of local financial markets enhances the absorptive capacity of the local economy in terms of utilising the gains of FDI, the deductive approach provides the framework that will ultimately help in achieving this aim. It should be noted that though pragmatism allows the use of both quantitative and qualitative methods (i.e. mixed methods), the current study predominantly uses quantitative methods and as such only supports some aspects of pragmatism, which is the area of positive contribution to knowledge.

Deductive reasoning is associated with quantitative research. Quantitative research is a data collection and data analysis methods that uses or generates data in numbers (numerical data). On the contrary, qualitative research uses and generates non-numerical data. Bryman (2008) suggests that quantitative researchers are usually portrayed as being engrossed with the application of measurement processes to social life. Thus, quantitative variables or measures will range from measures of central tendency (mean, median and mode) to measures of spread (standard deviation and variance), as well as other statistical techniques such as regression analysis, correlation, and so on. Quantitative research as a research strategy is *deductivist* and *objectivist* in nature. The latter element means that quantitative research has combined the norms and practices of the natural scientific model and of positivism specifically and incorporates a social reality view as an objective reality.

This study on FDI and economic growth will analyse secondary (quantitative) data to ascertain the hypothesis that financial development brings about capital accumulation, which helps to enhance the linkages between FDI and economic growth. Therefore, unlike the inductive approach where theory formulation will follow data analysis, the deductive approach involves working with collected data to prove or disprove a given theory (Saunders et al., 2007:147). See Figure 4.1 below.

**Figure 4.1: The Process of Deduction**



**Source:** Adapted from Bryman (2008:10)

One of the issues often raised about the deductive process is that it appears very linear. That is, one step following the other in a clear and logical sequence (Bryman, 2008). However, this has proved not to be the case in many instances. A researcher's view of the theory or literature could change because new theoretical ideas or findings could have been published by others before the researcher has summarised his or her findings or the relevance of a set of data for a theory may become obvious only after the data have been collected or even the analysis of the collected data. These all support the idea that observations or findings should precede theory (i.e. inductive approach).

These issues implicitly or explicitly manifest themselves in four main pre-occupations that are for quantitative researchers: (1) measurement, (2) causality, (3) generalization, and (4) replication (Bryman, 2008:155). These pre-occupations reflect grounded epistemologically beliefs about what constitutes acceptable knowledge.

#### *4.2.2.1. Measurement*

From the perspective of quantitative research, measurement carries several advantages, which is (1) measurement allows us to delineate fine differences between research subjects in terms of their characteristics or variations, (2) measurement provides us a consistent yardstick or device for making such



distinctions. A measurement device provides a consistent instrument for gauging differences, (3) measurement provides the basis for more exact estimates of the degree of relationship between concepts (e.g. through correlation analysis). Measurement problems tend to pose “reliability” and “validity” issues to quantitative researchers. Reliability, on the one hand, is basically concerned with issues of consistency of measures of concepts. Validity, on another hand refers to the question of whether an indicator (or set of indicators) that is devised to measure a concept actually measures that concept. One of the validity problems which might likely be encountered is the problem of which indicator to choose that accurately captures the balance of payment statistics on FDI. There are two measures that look at this: (a) net FDI flows and (b) gross FDI flows. Net FDI inflows, reported in the IMF’s international financial statistics (IFS) measures the net inflows of investment to gain a lasting management interest (10% voting stock or more) in an enterprise operating in an economy other than that of the investor. It is the sum of the reinvestment of earnings, equity capital, other short-term and long-term capital as shown in the balance of payments (Sghaier and Abida, 2013). On the other hand, gross FDI figures reflect the total sum of the absolute value of inflows and outflows accounted in the financial accounts of the balance of payments. The model adopted by this study focuses on the inflows to the Nigerian economy. Therefore, this study will use the net inflow measure.

In connection with (3) above, one justification for choosing the quantitative approach is the fact that it allows the “explanation of relationships between variables”, provided that the researcher is “independent of what is being observed”, and “if generalization about results is to be made then it is necessary to select samples of sufficient numerical size” (Saunders et al., 2007:145). The key data used in this study are indicators of FDI, financial development and measures of real economic growth and its sources. The sample will consist of time series data of 45 observations for the period 1970 to 2014. Though this sample size is not adequate, this study attempts to use auto-regressive distributed lags (ARDL) in order to enhance the power of the results.

#### *4.2.2.2. Causality*

Causality is a major concern in most quantitative studies because quantitative researchers don't just report or describe how things are but are obligated to explain why things are the way they are (Bryman, 2008: 156). With respect to the current

study, the issue of causality often arises between FDI and economic growth. That is, is it FDI that causes economic growth or economic growth causes FDI? To address this issue, this study uses the Granger Causality test to know whether FDI is the one that causes growth or whether growth is the one that causes FDI. The Granger Causality approach measures the precedence and information provided by a variable (X) in explaining the current value of another variable (Y) (Granger, 1969; Nwosa *et al*, 2011). It says that Y is said to be granger-caused by X if given the past values of Y, the past values of X helps in predicting the value of Y. The null hypothesis  $H_0$  tested is that X does not granger-cause Y and Y does not granger-cause X. Previous study by Omran and Bolbol (2003) found that the level of impact FDI has on growth may be subject to a minimum threshold level of financial development, so that it is appropriate to check whether FDI itself could contribute to financial development and in so doing, improve its chances to stimulate growth. An example of a study that examines the issue of causality in Nigeria, the country of study, is Umoh *et al.* (2012) who analysed the endogenous effects between FDI and economic growth and found evidence of a positive bi-directional causality (that is, there is a positive feedback from FDI to growth and from growth to FDI).

#### *4.2.2.3. Generalization*

Another distinctive preoccupation that can be discerned in quantitative research is generalisation. In quantitative research, the researcher is typically concerned with being able to say that his or her findings are generalizable beyond the boundaries of the context in which the research was carried out (Bryman, 2008:156). Therefore, if a study on bank lending to small businesses is carried out by a questionnaire with several entrepreneurs answering the questions, we would normally want to say that the results could apply to entrepreneurs apart from those whose response were used in the study. This concern divulges itself in business survey research in terms of the attention that is usually given to the question of how the researcher can create a representative sample.

However, in the case of the current research, which does not utilise a survey procedure, generalization will mean how widespread or universal the results obtained from the country of study (Nigeria) can be applied in studies on FDI, financial development and economic growth in other jurisdictions. The way this study responds to this is to compare the level of financial market development in the country of study with that in other countries before any conclusions or generalizations can be made.

There will be no use comparing the results of the study with what obtains in the UK, simply because both countries are at different stages of market development. For instance, in the study by Alfaro et al. (2004) which used panel data from a sample of 71 OECD and non-OECD countries, several countries were excluded when performing some of the regressions, for example, based on the non-existence of stock markets in certain less developed financial markets. It is inappropriate to generalise with a procedure for all subjects in a sample without taking due cognisance of the idiosyncratic characteristics of the subjects, in the same way it is inappropriate to generalize the findings of a research beyond the cases (for example, the subjects) that make up the sample. The outcome of the current study will only be compared to findings from similar studies on the economic effects of FDI in Nigeria and other emerging markets such as Latin America, Asia, Middle East and North Africa and Other Sub-Saharan African countries.

#### *4.2.2.4. Replication*

In the natural sciences, an experiment or research procedure should be capable of being replicated or reproduced. If an experiment is not capable of being reproduced, it will raise concerns about the validity of the research findings. Scientists therefore, often try to be highly clear about the procedures used in their research in order for an experiment to be capable of being replicated. In the same vein, quantitative researchers in the social sciences often see replication or more precisely, the ability to replicate as an imperative component of their research. This is because the possibility of a lack of intrusion and objectivity of the researcher's values would seem to be much greater when examining the social world than when the natural scientist investigates natural phenomena (Bryman, 2008:157). Therefore, it is often regarded as imperative that a researcher clearly spells out his or her procedures so that others can replicate them, even if the research is not eventually replicated.

Having reviewed the philosophical approaches and the process of deduction associated with quantitative research of this nature, the rest of this chapter sets out the data collection process, describes the econometric methods and specifies, in a step-by-step manner, all the statistical and econometric procedures and tests that would be followed in this study on FDI, financial development and economic growth.

### 4.3. Data and Measurement Variables

#### 4.3.1. Data Sources

Indicators of FDI, financial development and measures of real economic growth and its sources are the key data used in this study. The sample consists of time series data of 45 observations for the period 1970 to 2014. FDI data was obtained from the United Nations Conference on Trade and Development (UNCTAD)'s FDI Statistics, which reports both inward and outward flows and the net FDI inflows. Data on financial development indicators (including private credit and liquid liabilities) and some control variables (gross fixed capital formation or gross private investment, government consumption/GDP, volume of trade (exports plus imports)/GDP, and inflation) were obtained from the Central Bank of Nigeria (CBN) statistical bulletin and World Bank's World Development Indicators (WDI) online database. Data on stock market indicators were obtained from the Nigerian Stock Exchange, while data on human capital proxy and population growth were obtained from the National Bureau of Statistics (NBS).

#### 4.3.2. Description of Measurement Variables

##### 4.3.2.1. *Growth Indicators*

The dependent variables for the study is real GDP per capita (in log form). This is obtained as a ratio of real GDP to the population, following Borensztein et al (1998), Ayanwale (2007), Dinda (2008) and Adi et al. (2015). As we noted in chapter 3, the use of absolute GDP for studies on FDI-growth nexus has been contested in the literature because it does not reflect the income or buying power of the population and as such becomes a poor indicator of market potential for foreign investors products (Chakrabarti, 2001). Hence, an increasing number of studies are using GDP per capita. In order to more closely assess the impact of FDI on the Nigerian economy, especially the non-oil sector, there is need to extrapolate the oil GDP from the overall GDP, to obtain the non-oil GDP per capita and then express the independent variables of interest to non-oil GDP per capita (Ayanwale, 2007). Non-oil GDP per capita is obtained by dividing the real non-oil GDP by the total population. All figures for real GDP, real non-oil GDP and population were obtained from the Central Bank of Nigeria (CBN) statistical bulletin.

#### *4.3.2.2. FDI Inflows*

FDI inflows as reported in the IFS, measure the net inflows of foreign investment to acquire/gain a lasting interest in management (10% voting stock or more) in a corporate entity operating in an economy other than that of the investor. It is the sum of reinvestment of earnings, the equity capital, and other short-term and long-term capital as shown in the balance of payments (Sghaier and Abida, 2013). Gross FDI figures reflect the total sum of the absolute value of inflows and outflows accounted in the financial accounts of the balance of payments. The model adopted by this study focuses on the inflows to the Nigerian economy. Therefore, this study used the net inflow measure. Following Nwosa et al. (2011), the FDI variable in Nigeria is measured by the direct investment items in the balance of payment account of Nigeria; while economic growth is measured by the real gross domestic output (RGDP) derived by dividing the nominal gross domestic output by the consumer price index.

#### *4.3.2.3. Financial Development Variables*

As noted in the last chapter, several notable studies globally have found strong evidence that financial development is positively associated with economic growth and capital accumulation (e.g. McKinnon, 1973; Shaw, 1973; King and Levine, 1993a&b; Levine and Zervos, 1998; Beck and Levine, 2004). In line with the literature, financial development indicators can be divided into two classes: (1) bank-based indicators and (2) market-based indicators. **Bank based indicators** are classified into three groups, namely measures of financial depth, misallocation of financial resources and market-oriented financing (Guariglia and Poncet, 2006). These indicators permit us to account for both size and quality effects of financial development and intermediaries. Two measures are appropriate for measuring financial deepening or banking sector size. The first is the ratio of savings deposit or liquid liabilities to GDP (FinDev1). The second measure is defined as the ratio of total private sector credits to GDP (FinDev2). These two indicators measure the financial resources that are available for investment in Nigeria. To assess the specific impact of misallocation of funds, a third variable is introduced – the ratio of loans to deposits (FinDev3). The second category of financial development indicators, known as **market-based indicators** is mainly associated with the stock market. Brasoveanu et al. (2008) classified the stock market indicators into categories namely: (1) size variable, and (2) liquidity variable. The size variable is represented by the ratio of market capitalization to GDP (FinDev 4), while liquidity

variables are proxied by (i) value added ratio defined as trading volume/GDP (FinDev 5) and (ii) turnover ratio defined as trading volume/market capitalization (FinDev 6) as used by Levine and Zervos (1998).

#### *4.3.2.4. Control Variables*

Several control variables will also be used in the regressions, including:

**Trade openness:** This is measured by ratio of trade (exports and imports) to GDP. As reviewed in chapter 3, the more open (and less restrictive) an economy is, the easier it is to do business and the more FDI inflow (and associated positive externalities) it can attract and hence more growth. Moreover, many studies have shown that outward-oriented economies consistently have higher rates of growth than inward-oriented countries (Harrison, 1996; Yanikkaya, 2003). Thus, a positive relationship between trade openness and growth is expected.

**Government Consumption:** This is the aggregate consumption expenditure of the government sector and it is a measure of government size. A larger size of government is more likely to positively contribute to economic growth as shown by endogenous models of economic development (e.g. Ram, 1986; Barro, 1990).

**Population Growth rate:** measures how fast the population is growing and can be used as proxy for country market size as well as availability of labour input. As reviewed in chapter 3, population growth has the potential to drive economic growth (Essien, 2016). However, it has also been shown that (everything else held constant), a higher population growth rate would lower per capita economic growth; implying a negative relationship between population growth rate and economic growth (Khordagui and Saleh, 2013). Thus, the evidence is mixed.

**Human Capital proxy:** This is measured by the ratio of secondary and tertiary institution enrolment in the population and it is an indicator of the quality of intellectual capital of the economy. The quality of human capital is an essential determinant of the absorptive capacity of an economy (Borensztein et al., 1998; Li and Liu, 2005; Blonigen and Wang, 2005)

**Infrastructure Development:** This is measured by electric power consumption per capita. Good infrastructure reduces operating costs for businesses, increases the productivity of investments and leads to economic growth. (Wheeler and Mody,

1992). As reviewed in chapter 3, electricity consumption has been found to be a major driver of growth in Nigeria (e.g. Akinlo, 2009; lyke, 2015). A positive relationship between electricity consumption and growth is thus expected.

**Exchange Rate<sup>13</sup>:** This is a measure of macroeconomic stability as it influences the flow of goods, services and capital in an economy and thus exerts pressure on other macroeconomic variables (Obi et al., 2016). A country with a stable currency will attract foreign investors since they are less likely to face exchange rate risk when repatriating profits. Moreover, since Nigeria is heavily dependent on oil and gas revenues and foreign exchange earnings, exchange rate is likely to be a significant determinant of growth.

**Inflation Rate:** This is an alternative measure of macroeconomic stability. As discussed in the last chapter, contemporary theories show that a high rate of inflation is counterproductive and detrimental to growth (Fischer and Modigliani, 1978; Paul et al, 1997; Smyth, 1994; Barro, 1995). A low and stable price level reduces investment risks and uncertainty as well as the costs of doing business. Inflation is expected to have an indirect relationship with economic growth.

Note that other potential controls such as gross fixed capital formation (a measure of the stock of physical capital available to the economy), political stability index (measure of political risk), number of corporate bankruptcy and rule of law index (both measures of institutional quality) have been excluded due to data unavailability or incomplete data as discussed in chapter 3. All the variables used in this study and what they measure are summarised in Table 4.1:

**Table 4.1: Variables Measurement Used in the Empirical Analysis**

Variable Name	Description/Measure
<b>Growth Indicators</b>	
RGDP Per Capita	Real GDP/Population (where real GDP is nominal GDP adjusted for inflation)
RNOGDP Per Capita	Real Non-Oil GDP/Population (where real non-oil GDP is nominal non-oil GDP adjusted for inflation)
<b>FDI Variables</b>	
Real FDI Inflow	Nominal FDI adjusted for inflation
RFDI/RGDP	Real FDI Inflow as % Real GDP
<b>Financial Development Indicators: <i>Bank-Based Indicators</i></b>	
M2/GDP ( <i>FinDev1</i> )	Ratio of Liquid Liabilities (M2) to GDP (measure of financial depth)

<sup>13</sup> Exchange rate was later dropped in the empirical analysis due to high collinearity.



Private Credit/GDP( <i>FinDev2</i> )	Domestic Credit to Private Sector/GDP (measure of financial depth)
Loans/Deposits ( <i>FinDev3</i> )	Total Loans/Deposits (measure of resource allocation/misallocation)
<b>Financial Development Indicators: <i>Market-Based Indicators</i></b>	
MCAP/GDP( <i>FinDev4</i> )	Stock Market Capitalization/GDP (measure of market size)
Trading Volume/GDP ( <i>FinDev5</i> )	Value of Shares Traded/GDP (measure of market liquidity). It is also known as Value-Added Ratio.
Market Turnover ( <i>FinDev6</i> )	Value of Shares Traded/Market Capitalization (measure of market liquidity). It is also known as Turnover Ratio.
<b>Derived Variables (FinDev*FDI)</b>	
M2/GDP*FDI/GDP	Interaction of M2/GDP with FDI/GDP
Loans/Deposits*FDI/GDP	Interaction of Loan/Deposits with FDI/GDP
MCAP/GDP*FDI/GDP	Interaction of MCAP/GDP with FDI/GDP
Trading Volume/GDP*FDI/GDP	Interaction of Trading Volume/GDP with FDI/GDP
<b>Controls</b>	
Trade openness	(Imports and Exports)/GDP (measure of openness of the host economy to trade)
Population growth	Growth rate of population (measure of country market size and availability of labour input)
Government Consumption/GDP	Government Consumption Expenditure/GDP (measure of government size)
Electricity consumption per capita	Per capita electricity power consumption, i.e. electric power consumption/population (measure of infrastructure development)
Enrolment per capita	(Secondary +Tertiary Enrolment)/Population – (measure of human capital or intellectual capital)
Inflation	Average annual inflation rate (measure of overall economic stability)

**Source:** Adapted from the Literature on FDI, Financial Development and Growth

#### 4.4. Description of Econometric Methods

This study utilizes three main econometric methods to help in answering the three research questions: (1) Co-integration Analysis, (2) Granger Causality and (3) Ordinary Least Squares (OLS). It is important to state here that before making use of any of the tests, the researcher established that the data is stationary by carrying out a stationarity test to check for the presence or absence of unit roots in the time series. Unit root tests have increasingly become a popular path for determining the elements of macroeconomic time series variables. This development is as a result of the fact that most macroeconomic time series variables display non-stationarity behaviour, which is capable of nullifying the quality of empirical conclusions drawn from such estimates if no suitable measures are taken. Therefore, one class of econometric instrument that has been vital in guarding against the pitfall of spurious regression results arising from non-stationarity of time series variables is the unit root tests: the Dickey-Fuller (DF) test and the Augmented Dickey-Fuller (ADF) test



developed by Dickey and Fuller (1981); and the Phillip-Perron test developed by Phillip and Perron, 1988), among others. Taking the foregoing into cognisance, this study commenced its empirical analysis by establishing the stationarity properties of the variables. In this regard, the ADF test was used to infer the number of unit roots (if any) or non-stationarity of the variables, before the co-integration test among the variables were examined. The results of the ADF test are reported in chapter 5 under descriptive data analysis.

#### 4.4.1. Co-integration

Economic and financial time series often exhibit trends. Trends can either be deterministic (i.e. a function of time) or stochastic (i.e. a persistent but random long-term movement) (Fabozzi et al, 2014). To reveal a relationship among economic variables, it is imperative to model changes in stochastic trends over time. Cointegration is used to identify common stochastic trends among different economic variables. If economic variables are cointegrated, it means that they exhibit a long-run relationship. Recall that OLS method requires that variables be covariance stationary. A covariance stationary variable is one in which its mean and variance are constant, and its autocorrelations are finite and do not change over time (Hamilton, 1994; Johansen, 1988, 1995; Fabozzi, et al., 2014). When variables are not covariance stationary, Cointegration analysis provides a framework for interpretation, estimation and inference. Many economic time series appear to be “first-difference stationary” instead of being covariance stationary. This implies that the level of a time series is not stationary, but its first difference is. First difference stationary processes are also referred to as integrated processes of order 1, or  $I(1)$  processes. Covariance-stationary processes are  $I(0)$ . But removing the trend through differencing variables only allows the researcher to make statements about the changes in these variables (i.e.  $X_t - X_{t-1}$ ) rather than the level of these variables,  $X_t$ , which is usually of major interest. In addition, if the variables are subject to a stochastic trend, then a focus on the changes in the variables will lead to an error of specification in the regressions. Cointegration technique can be used to examine variables that share the same stochastic trend and at the same time avoid problems of spurious regression.

Since this study aims to examine the financial markets/financial development channel through which FDI may be beneficial to growth, it is important to first

examine the joint movement of FDI, financial development and economic growth. Hence, Johansen's co-integration analysis (Johansen, 1988; 1995) will be employed to find out if there is a long run relationship between FDI, financial development and economic growth. The Johansen's co-integration approach is chosen for this study because it allows for more than one co-integrating relationship, unlike the Engle-Granger (Engle and Granger, 1987), which is based on a linear combination of two co-integrating time series, which must be stationary. Johansen's test is however, subject to asymptotic properties, i.e. large samples. According to Pesaran, Shin and Smith (2001), if the sample size is too small then the results will not be reliable, and Auto Regressive Distributed Lags (ARDL) becomes inevitably necessary. However, since the sample size for this study is greater than 30 (i.e.  $T=45$ ), the Johansen-Julius approach will be used to estimate the vector error correction model (VECM). The Engle and Granger two-step Error Correction Model (ECM) is used to check the direction of long run causality where the Johansen's test show cointegration between a dependent variable and the set of independent variables.

#### 4.4.2 Granger Causality

To address research question (1), the Granger Causality test will be adopted in this research study to find out whether FDI is the one that Granger causes growth or whether growth is the one that Granger causes FDI and a period of 45 years (1970-2014) will be used for this analysis. The Granger Causality approach measures the precedence and information provided by a variable (X) in explaining the current value of another variable (Y). According to Granger (1969), a variable Y is said to be granger-caused by X if given the past values of Y, the past values of X helps in predicting the value of Y. A common method for testing Granger causality is to regress Y on its own lagged values as well as on lagged values of X. The null hypothesis  $H_0$  tested is that the lagged values of X do not granger-cause Y. Rejecting the null hypothesis is equivalent to accepting the alternative hypothesis  $H_1$  that the lagged values of X actually Granger-cause Y. In other words, the lagged values of X must be statistically significant for causality to exist. Given that the level of impact FDI has on growth may be subject to a minimum threshold level of financial development, it is thus appropriate to check whether FDI itself could contribute to financial development and, in doing so, enhance its chances in stimulating growth (e.g. Omran and Bolbol, 2003). The causality between financial development and growth is also examined and these will together provide answers to research

question (3). However, using Granger causality is not without limitations. Lin (2008) show that for causality to hold, two assumptions must be met: (1) The future value of X cannot predict the value of Y. That is, only the past causes the present or future. This largely ignores the role of expectations in shaping the behaviour of economic variables. (2) A cause contains unique information about an effect not available elsewhere.

#### 4.4.3. Ordinary Least Squares (OLS)

The main method used in this study to investigate research question (2) is the ordinary least squares (OLS) technique. OLS will be used to examine the direct effect of FDI and financial development on economic growth and then will also be used to ascertain the role of financial sector development in enhancing the contributions of FDI on economic growth using FDI-Financial Development interaction terms. OLS method is used for estimating the unknown parameters in a linear regression model. The objective of OLS is to closely "fit" a function with the data. It does so by reducing the sum of squared residuals (or errors) from the data (Gujarati, 2003). OLS makes key assumptions about the statistical properties of the data in order for model estimates to be valid and reliable. First, it assumes zero mean value of the disturbance term ( $u_i$ ). That is, given the value of the regressor (X), the mean or expected value of the random term  $u_i$  is zero (i.e.  $E(u_i | X_i) = 0$ ). Second, OLS assumes equal variance or homoscedasticity of  $u_i$ . Given the value of X, the variance of  $u_i$  is the same for all observations. That means, the conditional variances of  $u_i$  are identical. Third, OLS assumes no autocorrelation between the disturbances. Given any two X values,  $X_i$  and  $X_j$  ( $i \neq j$ ), the correlation between any two  $u_i$  and  $u_j$  ( $i \neq j$ ) is assumed to be zero. Fourth, the regression model is specified correctly.

Alternatively, there is no error or specification bias in the model used in conducting the empirical analysis. Here, the bias refers to choosing the wrong functional form. Fifth, there is no perfect multicollinearity. That means, there are no perfect linear relationships among the explanatory variables. These and many other assumptions must not be violated if OLS technique is to be reliable and valid (Gujarati, 2003). As noted in chapter 2, there are several problems encountered when estimating a typical Cobb-Douglas production function or economic growth models using OLS techniques, including problem of collinearity, the mix of stationary and non-stationary variables as well as endogeneity. Some of the measures taken in this study to overcome all these problems include conducting preliminary tests for

normality, unit root, multicollinearity and other postestimation tests to check the shape of the residuals (error terms). Key variables which did not follow a normal distribution were transformed while non-stationary variables were made stationary before running the regressions. In addition, duplicate variables that were highly collinear were either treated or removed to avoid any spurious regressions.

## 4.5. Model Specifications

### 4.5.1. Causality Between FDI and Economic Growth

To address research question (1), the Granger Causality test was adopted in this research study to know whether FDI is the one that Granger causes growth or whether growth is the one, that Granger causes FDI. Following Olusanya (2013), the pre-and post-deregulation economy of Nigeria was examined in sub-samples, i.e. 1970-1986 and 1986 to 2014.

#### **Model 1a: Causality between FDI and Economic Growth**

$$\text{RGDP Per capita} = f(\text{RFDI}) \dots \dots \dots (1)$$

In econometric terms, equation 1 becomes:

$$\text{RGDP Per capita} = \alpha + \beta_1 \text{ FDI} + \Sigma_i \dots \dots \dots (2)$$

Where:

RGDP Per capita = Real Gross Domestic Product /population

RFDI= Real FDI Inflow

$\Sigma_i$  = Error term

#### **Model 1b: Causality between FDI and Non-Oil Growth**

Since Nigeria is mainly dependent on oil exports, it will be helpful to disentangle the effect of oil from its real GDP to see whether FDI inflows have an impact on the non-oil sectors (such as agriculture, manufacturing, and services sectors).

Thus, we specify a modified equation:

$$\text{RNOGDP Per capita} = f(\text{RFDI}) \dots \dots \dots (3)$$

In econometric terms, equation 1 becomes:

$$\text{RNOGDP Per capita} = \alpha + \beta_1 \text{ RFDI} + \Sigma_i \dots \dots \dots (4)$$

Where:

RNOGDP Per capita = Real Non-Oil Gross Domestic Product /population

RFDI= Real FDI Inflow

$\Sigma_i$  = Error term

#### 4.5.2. Causality Between Financial Development and Growth

The moderating effect of financial development in shaping the relationship between FDI and growth can also be appreciated if we know the direction of causality between financial development and growth as in studies that show that better financial systems accelerate the pace of economic growth and capital accumulation (e.g. McKinnon, 1973; Shaw 1973; King and Levine, 1993a&b; Levine and Zervos, 1998; Beck and Levine, 2004). As financial development is measured by banking and stock market development, we develop two models as follows:

##### **Model 2(a): Causality between Banking Sector Development and Growth**

We specify a Granger Causality test of the form:

$$\text{RGDP Per Capita} = f(\text{BankingDev}) \dots \dots \dots (5)$$

In econometric terms, equation 5 becomes:

$$\text{RGDP Per Capita} = \alpha + \beta_1 \text{BankingDev} + \Sigma_i \dots \dots \dots (6)$$

Where: RGDP Per Capita is as previously defined and *BankingDev* represent each of the banking sector indicators - *FinDev1*, *FinDev2* and *FinDev3* (as previously defined to mean M2/GDP, Priv Sector/GDP and Loan Deposit ratios respectively).

$\Sigma_i$  = Error term

##### **Model 2(b): Causality between Stock Market Development and Growth**

We specify a Granger Causality test of the form:

$$\text{RGDP Per Capita} = f(\text{StockMarketDev}) \dots \dots \dots (7)$$

In econometric terms, equation 7 becomes:

$$\text{RGDP Per Capita} = \alpha + \beta_1 \text{StockMarketDev} + \Sigma_i \dots \dots \dots (8)$$

Where: RGDP Per Capita is as previously defined and *StockMarketDev* represent each of the stock market development indicators - *FinDev4*, *FinDev5* and *FinDev6* (as previously defined to mean MCAP/GDP, Trading Volume/GDP and Market Turnover ratios respectively).

$\Sigma_i$  = Error term

#### 4.5.3. Causality Between FDI and Financial Development

Given that the level of impact FDI has on growth may be subject to a minimum threshold level of financial development, it is thus appropriate to check whether FDI

itself could contribute to financial development and, in doing so, enhance its chances in stimulating growth (e.g. Omran and Bolbol, 2003).

### **Model 3a: Causality between FDI and Banking Sector Development**

Hence, we specify a Granger Causality test of the form:

$$BankingDev = f(RFDI) \dots \dots \dots (9)$$

In econometric terms, equation 9 becomes:

$$BankingDev = \alpha + \beta_1 RFDI + \Sigma_i \dots \dots \dots (10)$$

Where: *BankingDev* and *RFDI* are as previously defined.

$\Sigma_i$  = Error term

### **Model 3b: Causality between FDI and Stock Market Development**

Hence, we specify a Granger Causality test of the form:

$$StockMarketDev = f(RFDI) \dots \dots \dots (11)$$

In econometric terms, equation 11 becomes:

$$StockMarketDev = \alpha + \beta_1 RFDI + \Sigma_i \dots \dots \dots (12)$$

Where: *StockMarketDev* and *RFDI* are as previously defined.

$\Sigma_i$  = Error term

The tests in models 2 and 3 thus address research question 3.

#### **4.5.4. FDI, Financial Development and Economic Growth**

To address the research question (2) this study will examine the financial markets /financial development channel through which FDI may be beneficial to growth.

### **Model 4 (a): Economic Growth as a function of FDI and Financial Development**

As a starting point, we examine the direct effect of FDI and Financial Development on economic growth and estimate the following OLS regression:

$$GROWTH = \beta_0 + \beta_1 RFDI/RGDP + \beta_2 FinDev + \beta_3 CONTROLS + \Sigma_i \dots \dots \dots (13)$$

Where *GROWTH* is represented by *RGDP Per capita*

*RFDI/RGDP*= Real FDI to Real GDP ratio

*FinDev* = Financial Sector Development proxy to *RGDP* ratio (i.e. bank based and market- based indicators: *FinDev1*, *FinDev 2*, *FinDev3*, *FinDev 4*, *FinDev 5* and *FinDev 6*)

Controls include various determinants of GDP growth, including: Trade Openness, Government Consumption, Infrastructure Development, Human Capital proxy, Population Growth, Return on Investment and Inflation rate.

#### **Model 4(b): Economic Growth as a function of FDI, Financial Development and the Interaction of FDI with Financial Development**

Equation (13) can be extended to include the variable (*RFDI/GDP X FinDev*), as do other studies such as Alfaro et al. (2003, 2004) and Chee and Nair (2010). The term *RFDI/GDP X FinDev* is used to capture the role of financial sector development in enhancing the contributions of FDI on economic growth. Equation 13 is thus modified as follows:

$$GROWTH = \beta_0 + \beta_1 RFDI + \beta_2 RFDI/GDP \times FinDev + \beta_3 FinDev + \beta_4 CONTROLS + \sum_i \dots \dots \dots (14)$$

All variables are as defined earlier. The interaction term *RFDI/GDP X FinDev* is the regressor used to test for the significance of financial markets in enhancing the externalities associated with FDI flows

#### **4.6. Chapter Summary**

This chapter has reviewed the empirical methodology for this study. The first section reviews several epistemological issues, critiques, and positions that are relevant to the study on FDI and economic growth. An epistemological issue is concerned with the question of what is (or should be) considered as acceptable knowledge within a discipline. A particularly dominant issue in this regard is the question of whether or not the social world can and should be studied according to the same ethos, principles and procedures used in studying the natural sciences. The study majors on positivism, pragmatism and empiricism because they are the most relevant to the topic under consideration. Empiricism and positivism as philosophical positions support the process of deductive reasoning, which is the research approach used by this study. Pragmatism, on the other hand, places emphasis on investigating a research question with the aim of making positive contribution to knowledge, which is the overriding objective of the chosen research topic.

The chapter considers many relevant philosophical criticisms that may be made with respect to the underlying arguments contained in the research or research methods

used and how these can be guarded against or, at best, managed to enhance the reliability and validity of the propositions or research findings. The key issues are those involving quantitative research methods and relate to measurement, causality, generalization and replication. The approaches used by this study to solving these issues are: (1) choosing the best indicators that accurately measure FDI, financial development and economic growth. (2) Examining the issue of causality between FDI and economic growth using proven techniques such as Granger causality. (3) Avoiding generalizing results by comparing the findings of the current research to only those economies or financial markets at the same level of market development. (4) expressly laying out the research questions, hypotheses, data sources, empirical methodology and all statistical procedures and tests in a systematic manner to make replication possible, and (5) making clear the findings and interpretations of the results and the positive contributions that the study makes to the body of knowledge.

In terms of data and empirical methodology, the study sample consists of time series data of 45 observations for the period 1970 to 2014. FDI data was obtained from UNCTAD's FDI Statistics, while data on financial development indicators and control variables were obtained from the Central Bank of Nigeria (CBN) statistical bulletin and World Bank's World Development Indicators (WDI). This study makes use of three main econometric methods to help in answering the three research questions: (1) Cointegration Analysis, (2) Granger Causality, and (3) Ordinary Least Squares (OLS). The Granger Causality test is adopted in this research study to know whether FDI is the one that causes growth or whether growth is the one that causes FDI. It will also be used to check the causality between financial development and FDI and financial development and growth. Johansen's co-integration analysis will be employed to examine the joint (long-run) movement of FDI, financial development and economic growth. OLS will be used to examine the direct effect of FDI and financial development on economic growth as well as capture the role of financial sector development in enhancing the contributions of FDI on economic growth. In all, there are three main models (with sub-models) each testing the relevant hypothesis for the research questions.



## Chapter 5

### Descriptive Data Analysis

#### 5.1. Introduction

Having reviewed the methodological framework for the study, this chapter describes the characteristics of the data and the relationships between the variables of interest before a full econometric analysis is carried out in the next chapter. Descriptive statistics is essential because it enables the researcher to describe (and compare) variables numerically (Saunders et al., 2009). Descriptive statistics are useful for the purpose of describing the basic features of the data used in a study, including simple summaries about the sample and the structure of the variables. Together with simple graphical analysis, they form the basis of the econometric analysis of data. The first part of this chapter (section 5.2) presents a preliminary analysis of the underlying dataset by carrying out several tests to describe the structure of the dataset, including tests for normality and data transformation, unit roots, outliers and multicollinearity. The second part of the chapter (section 5.3) presents the descriptive statistics and univariate analysis of the data in terms of the characteristics of the FDI determinants in Nigeria, growth indicators, and financial development indicators. It also examines the correlation of measurement variables used in this study, most notably the correlation of FDI with growth indicators and the correlation of FDI with financial development indicators and other drivers of economic growth.

#### 5.2. Preliminary Tests

Before performing full econometric analysis, several preliminary tests were conducted to understand the characteristics of the dataset, including tests for normality, unit roots, outliers and multicollinearity. These are presented below.

##### 5.2.1. Test for Normality and Data Transformation

A large number of statistical procedures, including t tests, correlation, regression and analysis of variance, which are parametric tests are predicated on the assumption that the underlying data follows a normal or Gaussian distribution (Ghasemi and Zahediasl, 2012; Santiago, 2015). Hence, the assumption is that the

populations from which the samples are taken are of normal distribution. In the absence of normality, it is difficult to draw correct and reliable conclusions about the data (Ghasemi and Zahediasl, 2012). It is difficult to ascertain the distribution of a small sample data (<30) because the distribution tests will be insufficient in providing any meaningful results (Frost, 2015). Thus, normality tests work well with large samples (>30) because they contain adequate data that allows one to make reliable inferences about the shape of the distribution of the population from which the data was drawn. To test that the measurement variables used in the current study are normally distributed, the Shapiro-Wilk test was conducted. The Shapiro –Wilk test is based on Shapiro and Wilk (1965) with a new approximation accurate for  $4 \leq n \leq 2000$  (Royston 1992), that is samples under 2,000 observations. Thus, the Shapiro-Wilk test is suitable as the number of observations in the current study is 45.

**Table 5.1: Shapiro Wilk-Test for Normal Data**

Variable	Obs	z	Prob>z
Real FDI Inflows	45	5.121***	0.000
FDI/GDP	45	4.558***	0.000
Real GDP Per Capita	45	5.558***	0.000
Real Non-Oil GDP Per Capita	44	3.407***	0.000
M2/GDP	45	1.115	0.132
Private Credit/GDP	45	3.452***	0.000
Loan/Deposit Ratio	45	1.096	0.137
Market Capitalisation/GDP	45	4.284***	0.000
Trading Volume/GDP	44	5.908***	0.000
Market Turnover	45	2.458***	0.006
Trade Openness	45	0.387	0.349
Population Growth	45	3.306***	0.000
Government Consumption/GDP	45	1.871**	0.031
Electric Consumption Per Capita	44	0.505	0.307
Enrolment Per Capita	45	1.659**	0.049
Inflation	45	5.100***	0.000

\*\*\* significant at the 1% level, \*\* significant at the 5% level

From the normality test results in Table 5.1, we can reject the hypothesis that real FDI inflows, FDI/GDP, real GDP per capita, real non-oil GDP per capita, private sector credit/GDP, MCAP/GDP, trading volume/GDP, market turnover, population growth, government consumption/GDP, school enrolment per capita, and inflation, are normally distributed. However, we cannot reject that M2/GDP, loan deposit ratio, trade openness, and electric consumption per capita are normally distributed. This implies that most of the variables (12) are non-normal, while only 4 are normally distributed.

Many practitioners suggest that if the data are not normal, one should do a non-parametric version of the test, which does not assume normality (Santiago, 2015) or transform the affected variables to a normal distribution such as using power transformations (e.g. Box and Cox, 1964; Cheng, 2005; da Silva et al, 2012).

According to Cox (1999), there are several reasons for transforming a variable, including convenience for a precise purpose (such as percentages instead of the original data, sines instead of degrees), reducing skewness, equalising spreads or variances (i.e. achieving homoscedasticity), as well as producing a nearly linear or additive relationship. In the current study, the ladder of powers was used to determine whether there are other forms of data transformation that would pass the normality test for the identified 12 non-normal variables. The command 'ladder' in STATA will search a data subset of the ladder of powers (Tukey, 1977) for a transform that converts the non-normal variable into a normally distributed variable.

The results are shown in Table 5.2. From the results of the ladder of powers, we cannot reject the hypothesis that the log of real GDP per capita, real non-oil GDP per capita, private credit/ GDP, MCAP/GDP, trading volume/GDP and inflation are normally distributed. Thus, the log of these variables is normally distributed. The current study will only use the log of real GDP per capita and real non-oil GDP per capita in the econometric analysis, in line with earlier studies exploring the relationship between FDI and economic growth (e.g. Borensztein, et al, 1998; Ayanwale, 2007). The rest variables will be used in their current form as they have already been transformed into percentages. Some practitioners suggest that in cases where a transformation does not yield desirable results, one could still use parametric procedures even when the data do not follow normal distribution, provided that the violation of normality was based on a large enough sample size (>30 or 40) (Elliot and Woodward, 2007; Ghasemi and Zahediasl, 2012). This is because the sampling distribution of a large sample tends to be normal irrespective of the shape of the distribution. According to the theorem central limit, where the sample data are approximately normal then the sampling distribution too will tend to be normal in large samples (> 30 or 40). The sampling distribution tends to be normal, irrespective of the shape of the data (Elliot and Woodward, 2007; Field, 2009:822).

**Table 5.2: Test for Data Transformation using Ladder of Powers**

Variables	Transformation								
	Cubic (var <sup>3</sup> )	Square (var <sup>2</sup> )	Identity	Square root $\sqrt{\text{var}}$	Log	1/ (square root) (1/ $\sqrt{\text{var}}$ )	Inverse (1/var)	1/square 1/(var <sup>2</sup> )	1/cubic 1/(var <sup>3</sup> )
Real FDI Inflows	29.62***	22.18***	11.97**	-	-	-	5.01	16.66***	24.09***
FDI/GDP	48.32***	42.99***	23.70***	-	-	-	4.25	20.73***	31.36***
Real GDP Per Capita	37.03***	31.16***	21.42***	12.30***	1.38	6.94**	21.05***	35.14***	40.07***
Real Non-Oil GDP Per Capita	9.14***	5.99**	16.77***	20.64***	4.25	12.93***	35.07***	59.69***	64.89***
Private Credit/GDP	54.33***	42.40***	19.08***	5.81	2.05	9.63***	18.39***	33.27***	44.21***
Market Capitalisation/GDP	52.52***	39.31***	16.97***	4.91	1.71	6.95**	20.69***	43.33***	55.73***
Trading Volume/GDP	48.82***	41.85***	26.87***	12.03***	2.69	19.40***	45.13***	62.28***	65.32***
Market Turnover	54.75***	30.70***	8.75**	0.21	3.81	7.07**	12.71***	25.94***	36.58***
Population Growth	15.35***	13.20***	11.02***	9.94***	8.88**	7.85**	6.85**	5.05	3.54
Government Consumption/GDP	9.01**	4.61	6.39**	7.88**	6.79**	4.42	4.00	9.93***	18.02***
Enrolment Per Capita	9.71***	4.95	3.00	3.54	6.12**	10.80***	16.28***	26.92***	35.44***
Inflation	39.87***	29.73***	17.75***	10.28***	2.89	1.09	13.58***	41.01***	56.19***

Statistics displayed are chi2(2).

\*\*\* significant at the 1% level

\*\* significant at the 5% level

### 5.2.2. Unit Root Tests for Stationarity

It is always appropriate to determine the stationarity of time series data before a full regression analysis is conducted. This is because the mean and variance of stationary time series do not change over time hence spurious regression results can be avoided (Yaoshen, 2014). On the other hand, working with non-stationary time series tend to lead to spurious and misleading regression results. The implication of this is a high coefficient of determination ( $R^2$ ) even when no significant relationship exists in the function (Maghori, 2014). However, if the variable data are found to be stationary, the co-integration regression will be adopted and if otherwise, the co-integration test will be applied. In order to tackle this problem, it is necessary to conduct a unit root test to check for the stationarity of the variables used in this study. Thus, the Augmented Dickey Fuller (ADF) test was employed in this study. Dickey and Fuller (1979, 1981) developed a method for testing whether or not a variable has a unit root or equivalently, that the variable follows a random walk. The null hypothesis is that the variable contains a unit root while the alternative hypothesis is that the variable was generated by a stationary process. This is represented as:

$H_0: \partial = 0$ : Variable contains a unit root (non-stationary) =  $I(1)$

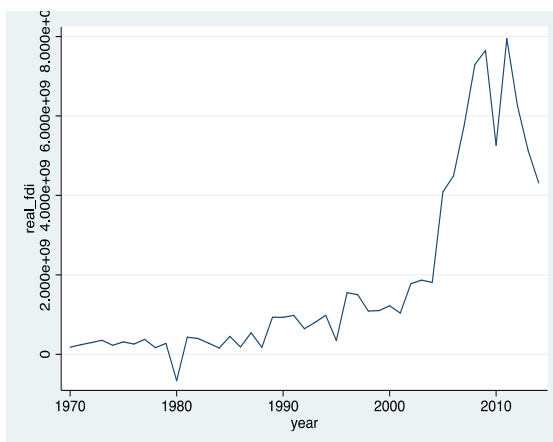
$H_A: \partial \neq 0$ : Variable contains no unit root (stationary) =  $I(0)$

Where  $H_0$  represents the null hypothesis and  $H_A$  represents the alternative hypothesis. If the ADF test-statistic is less in total value than the critical value, then the null hypothesis cannot be rejected (i.e. the series is non-stationary).

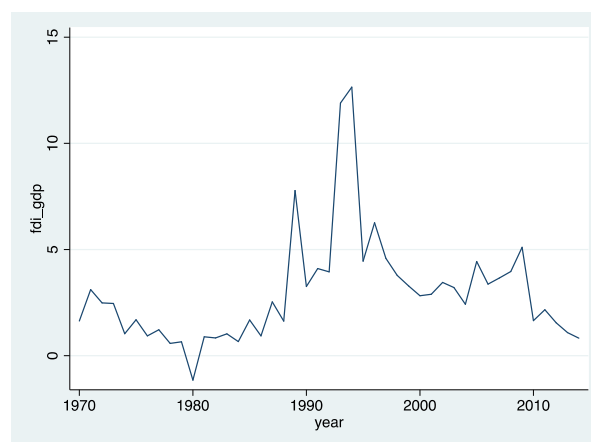
A visual inspection of the data series indicated that some variables are stationary with a trend, some are stationary around a non-zero mean, while others are non-stationary (see Figure 5.1). For variables that showed a trend, a deterministic trend option was selected, while those that did not show a trend only had a constant. The results of the ADF test for all measurement variables used are shown in Table 5.3. From Table 5.3, it can be observed that eleven of the measurement variables are stationary at level, while six are non-stationary, i.e. integrated of order  $I(1)$ .

**Figure 5.1: Graphical Representation of the Measurement Variables**

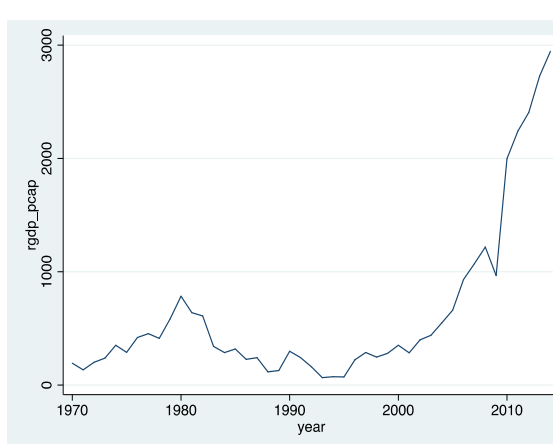
**(a) Real FDI**



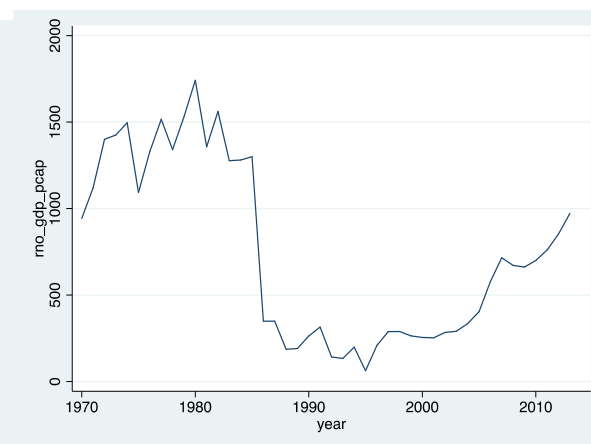
**(b) FDI/GDP**



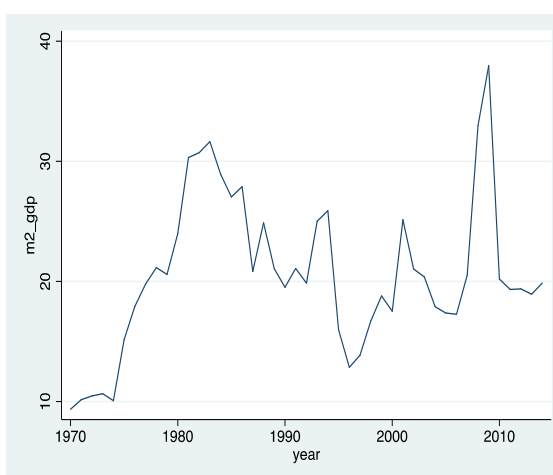
**(c) Real GDP Per Capita**



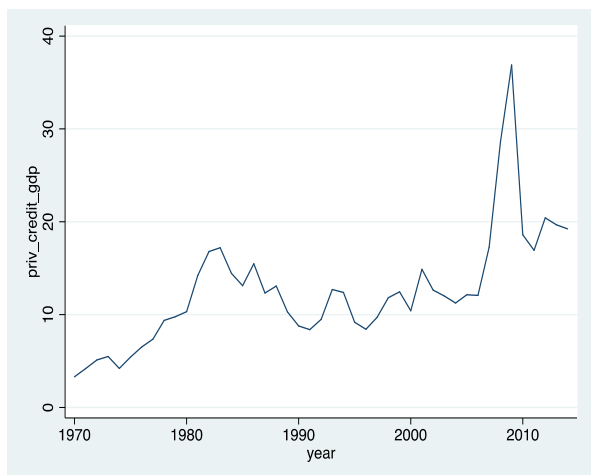
**(d) Real Non-oil GDP Per Capita**



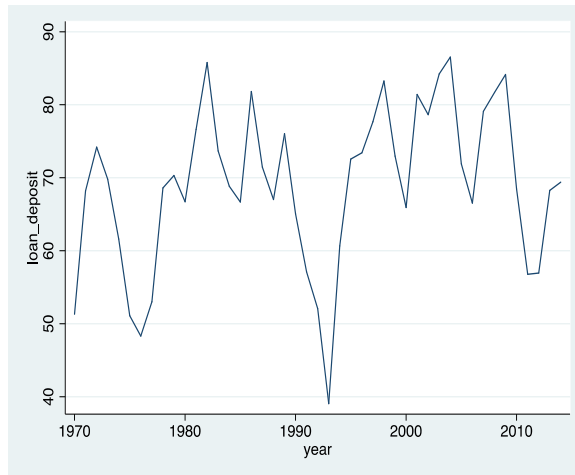
**(e) M2/GDP**



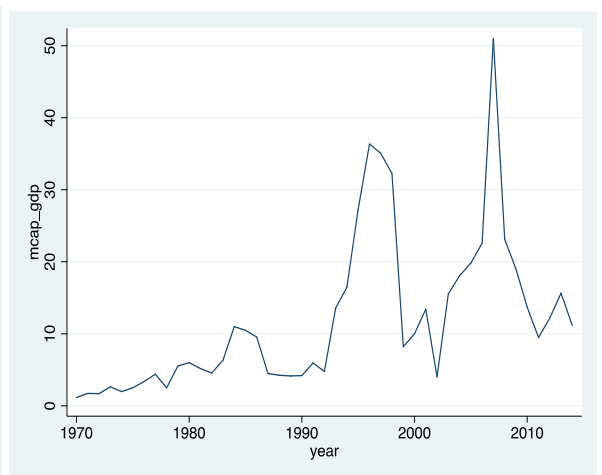
**(f) Private Sector Credit/GDP**



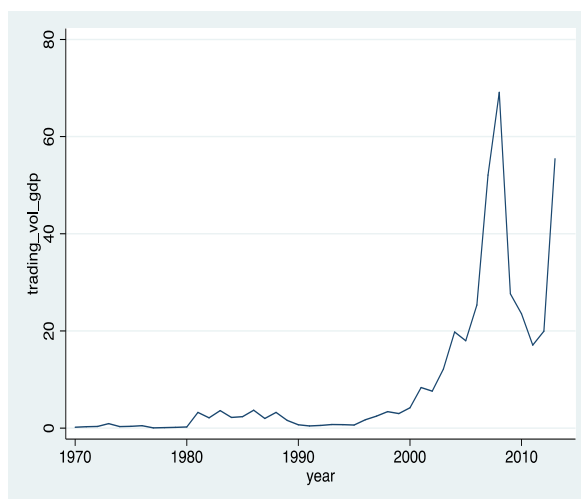
(g) Loan/Deposit Ratio



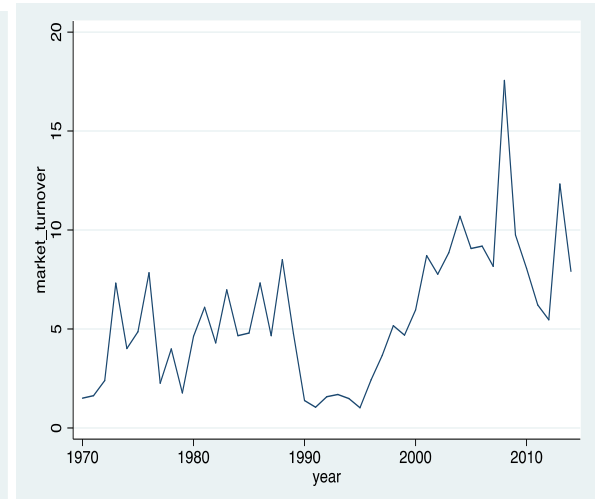
(h) Market Capitalisation/GDP



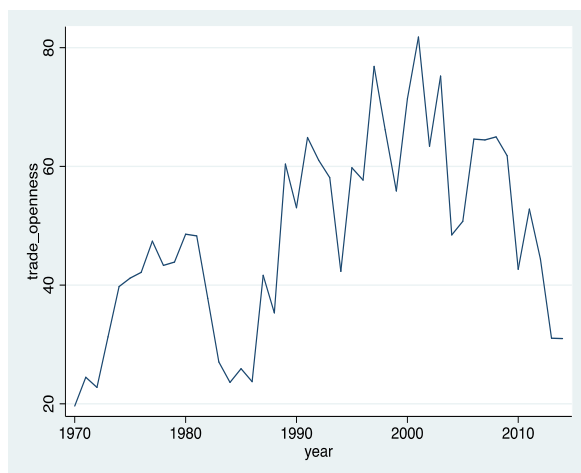
(i) Trading Volume/GDP



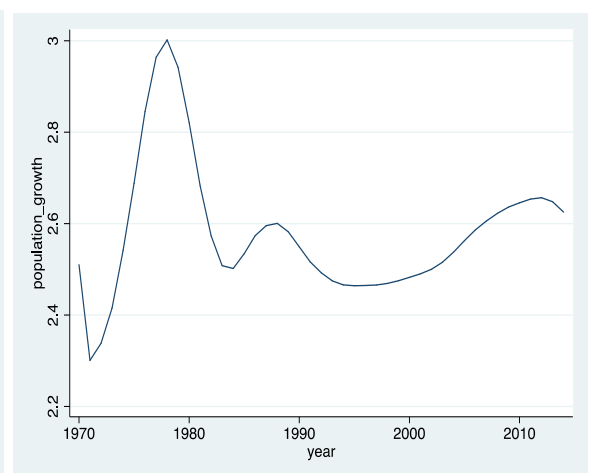
(j) Market Turnover



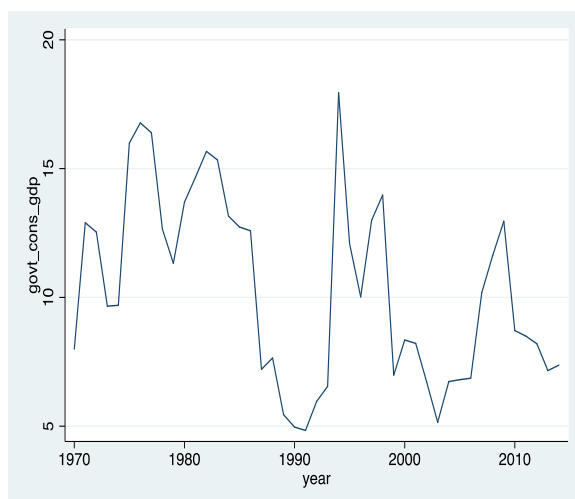
(k) Trade Openness



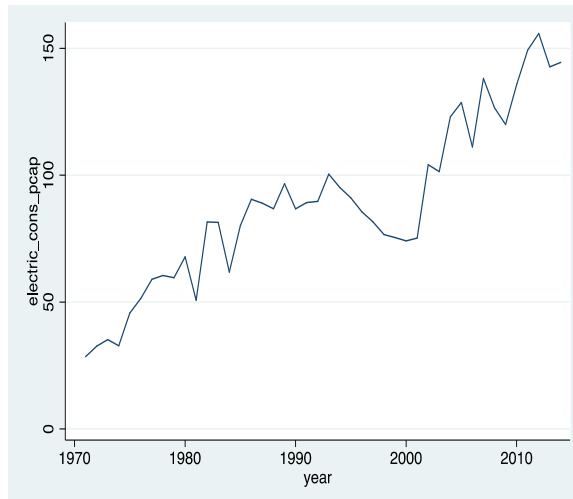
(l) Population Growth



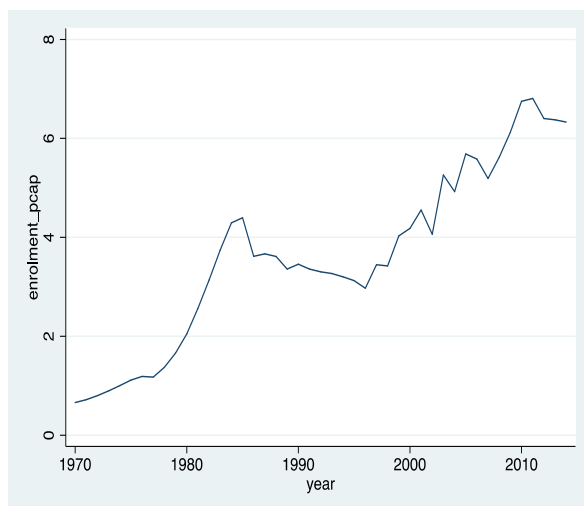
(m) Government Consumption/GDP  
Capita



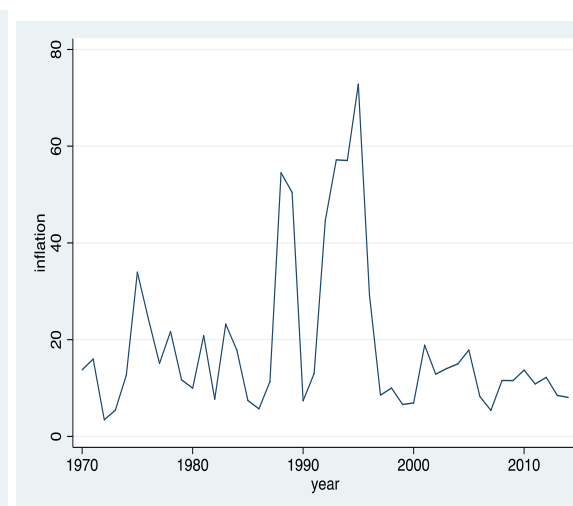
(n) Electric Consumption Per  
Capita



(o) Enrolment Per Capita



(p) Inflation



#### 5.2.2.1. Unit Root Test for FDI Variables

The ADF test statistic for real FDI (-3.779) is less than the 5% critical value (-3.540) and the 10% critical value (-3.204). Hence, we reject the null hypothesis that Real FDI contains a unit root, which is confirmed by the MacKinnon approximate p-value for  $Z(t) = 0.0177$  (significant at the 5% level). Real FDI is therefore stationary with an increasing time trend  $I(0)$ . The ADF test statistic for FDI/GDP (-2.316) is greater than all the critical values. Hence, we cannot reject the null hypothesis that FDI/GDP contains a unit root. The FDI/GDP variable is assumed to be non-stationary. Experiments with more lags in the augmented regression yield similar conclusions. However, its first difference is stationary, implying that it is integrated of order one  $I(1)$ .



#### *5.2.2.2. Unit Root Test for Growth Indicators*

The ADF test statistic for real GDP per capita (1.555) is far greater than all the critical values. Hence, we cannot reject the null hypothesis that real GDP per capita contains a unit root and thus the variable is taken to be non-stationary. Experiments with more lags in the augmented regression yield similar conclusions. The first difference of real GDP per capita is stationary, implying that it is integrated of order one  $I(1)$ . On the contrary, the ADF test statistic for real non-oil GDP per capita (-2.954) is less than the 5% critical value (-2.983) and the 10% critical value (-2.623). Hence, we reject the null hypothesis that real non-oil GDP per capita contains a unit root, which is confirmed by the MacKinnon approximate p-value for  $Z(t) = 0.0394$  (significant at the 5% level). Thus, we can conclude that real non-oil GDP per capita is stationary (i.e. does not contain a unit root or  $I(0)$ ).

#### *5.2.2.3. Unit Root Test for Financial Development Indicators*

All bank-based indicators are stationary. The ADF test statistic for M2/GDP (-3.137) is less than the 5% critical value (-2.950) and the 10% critical value (-2.608). Hence, we reject the null hypothesis that M2/ GDP contains a unit root, which is confirmed by the MacKinnon approximate p-value for  $Z(t) = 0.0239$  (significant at the 5% level). Thus, it can be safely said that M2/GDP is stationary (i.e. does not contain a unit root or  $I(0)$ ). The ADF test statistic for Private Sector Credit/GDP (-3.524) is less than the 10% critical value (-3.197). Hence, we reject the null hypothesis that Private Sector Credit/ GDP contains a unit root, which is confirmed by the MacKinnon approximate p-value for  $Z(t) = 0.0369$  (significant at 5%). Thus, it can be claimed that Private Sector Credit/GDP is stationary and has an increasing trend. The ADF test statistic for loan-to-deposit ratio (-3.713) is less than the critical values at all levels. Hence, we reject the null hypothesis that loan-to-deposit ratio contains a unit root, which is confirmed by the MacKinnon approximate p-value for  $Z(t) = 0.0039$  (significant at the 1% level). Thus, it can be safely concluded that loan-to-deposit ratio is stationary (i.e. does not contain a unit root -  $I(0)$ ).

**Table 5.3: Summary of Unit Root Test for Stationarity**

Variable	ADF Test Statistic Z(t)		Critical Value (1%)	Critical Value (5%)	Critical Value (10%)	MacKinnon ~ p-value for Z(t)	Case Type	No of Lags	Conclusion
	Level	First Diff							
Real FDI Inflows	-3.779**	-	-4.242	-3.540	-3.204	0.0177	Constant and time trend	4	I(0)
FDI/GDP	-2.316	-6.08***	-3.628	-2.950	-2.608	0.1668	Constant only	1	I(1)
Real GDP per capita	0.439	-4.44***	-4.279	-3.556	-3.214	0.9967	Constant and time trend	1	I(1)
Real Non-Oil GDP per capita	-2.954**	-	-3.709	-2.983	-2.623	0.0394	Constant only	12	I(0)
M2/GDP	-3.137**	-	-3.628	-2.950	-2.608	0.0239	Constant only	1	I(0)
Private Credit/GDP	-3.524**	-	-4.214	-3.528	-3.197	0.0369	Constant and time trend	1	I(0)
Loan/Deposit Ratio	-3.713***	-	-3.628	-2.950	-2.608	0.0039	Constant only	1	I(0)
Market Capitalisation/GDP	-3.858**	-	-4.242	-3.540	-3.204	0.0138	Constant and time trend	4	I(0)
Trading Volume/GDP	-2.858	-5.02***	-4.224	-3.532	-3.199	0.1765	Constant and time trend	1	I(1)
Market Turnover	-2.613	-2.92**	-4.214	-3.528	-3.197	0.2740	Constant and time trend	1	I(1)
Trade Openness	-2.205	-3.72***	-3.634	-2.952	-2.610	0.2044	Constant only	2	I(1)
Population Growth	-6.073***	-	-3.628	-2.950	-2.608	0.0000	Constant only	1	I(0)
Govt. Consumption/GDP	-3.873**	-	-4.242	-3.540	-3.204	0.0132	Constant and time trend	4	I(0)
Electric Consumption per cap	-2.269	-6.36***	-4.224	-3.532	-3.199	0.4512	Constant and time trend	1	I(1)
Enrolment per capita	-3.293*	-	-4.297	-3.564	-3.218	0.0674	Constant and time trend	10	I(0)
Inflation	-3.776***	-	-3.628	-2.950	-2.608	0.0032	Constant only	1	I(0)

\*\*\* significant at the 1% level, \*\* significant at the 5% level, \* significant at the 10% level

Two of the market-based indicators of financial development are non-stationary, while only one is stationary. The ADF test statistic for Market Capitalisation/GDP (-3.858) is less than the 5% critical value (-3.540) and the 10% critical value (-3.204). Hence, we reject the null hypothesis that Market Capitalisation/GDP contains a unit root, which is confirmed by the MacKinnon approximate p-value for  $Z(t) = 0.0138$  (significant at the 5% level). Market Capitalisation/GDP is therefore stationary with an increasing time trend  $I(0)$ . The ADF test statistic for Trading Volume/GDP (-2.858) is greater than all the critical values. Hence, we cannot reject the null hypothesis that Trading Volume/GDP contains a unit root, and the variable is taken to be non-stationary. Experiments with more lags in the augmented regression yield the same conclusion. However, its first difference is stationary, implying that it is integrated of order one  $I(1)$ . Similarly, the ADF test statistic for Market Turnover (-2.613) is greater than all the critical values. Hence, we cannot reject the null hypothesis that Market Turnover contains a unit root, and the variable is taken to be non-stationary. Experiments with more lags in the augmented regression yield the same conclusion. However, its first difference is stationary, implying that it is integrated of order one  $I(1)$ .

#### *5.2.2.4. Unit Root Test for Control Variables*

The ADF test statistic for Trade Openness (-2.205) is greater than all the critical values. Hence, we cannot reject the null hypothesis that Trade Openness contains a unit root, and the variable is taken to be non-stationary. Experiments with fewer or more lags in the augmented regression yield the same conclusion. However, its first difference is stationary, implying that it is integrated of order one  $I(1)$ . The ADF test statistic for Population Growth (-6.073) is less than the critical values at all levels. Hence, we overwhelmingly reject the null hypothesis that Population Growth contains a unit root, which is confirmed by the MacKinnon approximate p-value for  $Z(t) = 0.0000$  (significant at the 1% level). Population Growth is therefore considered stationary  $I(0)$ . The ADF test statistic for Government Consumption/GDP (-3.873) is less than the 5% critical value (-3.540) and the 10% critical value (-3.204). Hence, we reject the null hypothesis that Government Consumption/GDP contains a unit root, which is confirmed by the MacKinnon approximate p-value for  $Z(t) = 0.0132$  (significant at the 5% level). Government Consumption/GDP is therefore stationary with a decreasing time trend  $I(0)$ . However, the ADF test statistic for Electric Consumption per capita (-2.269) is greater than all the critical values. Hence, we cannot reject the null hypothesis that Electric Consumption per capita contains a

unit root, and the variable is taken to be non-stationary at level. Experiments with more lags in the augmented regression yield similar conclusions. However, its first difference is stationary, implying that it is integrated of order one [ $I(1)$ ]. The ADF test statistic for Enrolment per capita (-3.293) is less than the 10% critical value (-3.218). Hence, we reject the null hypothesis that Enrolment per capita contains a unit root, which is confirmed by the MacKinnon approximate p-value for  $Z(t) = 0.0674$  (significant at the 10% level). Enrolment per capita is therefore stationary with an increasing time trend [ $I(0)$ ]. Finally, the ADF test statistic for Inflation (-3.776) is less than all the critical values. Hence, we reject the null hypothesis that Inflation contains a unit root, which is confirmed by the MacKinnon approximate p-value for  $Z(t) = 0.0032$  (significant at the 1% level). Thus, it can be safely concluded that Inflation is stationary (i.e. does not contain a unit root -  $I(0)$ ).

### 5.2.3. Detecting and Dealing with Outliers

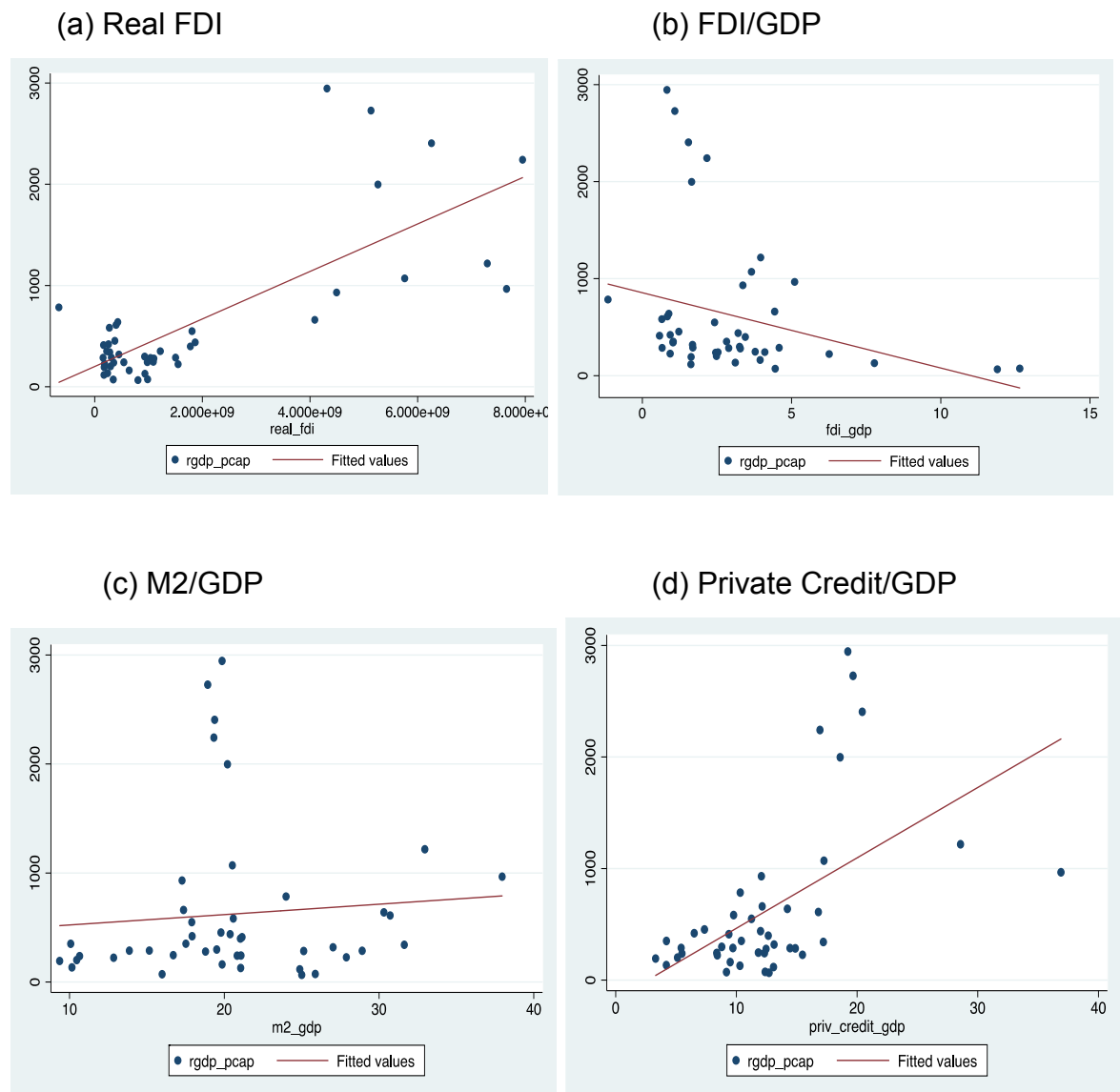
One major problem with least squares estimation occurs when there are one or more large deviations. That is, observations whose values differ significantly from the other observations. These cases are known as outliers. According to Williams (2016), outliers present problems in econometric estimation because (a) extreme values of observed variables can misrepresent estimates of regression coefficients. (b) They may reflect coding errors in the data, e.g. the researcher has failed to declare some values as missing or the decimal point is misplaced. (c) They may be a result of model misspecification, where the outlier belongs to a different population other than the one that the researcher intended to study or variables have been omitted that would account for the outlier. The diagnostic information provided by OLS can be a useful in understanding the structure of the underlying dataset even if the functional form of the model is different (Menard, 2002).

#### 5.2.3.1. Detecting Outliers

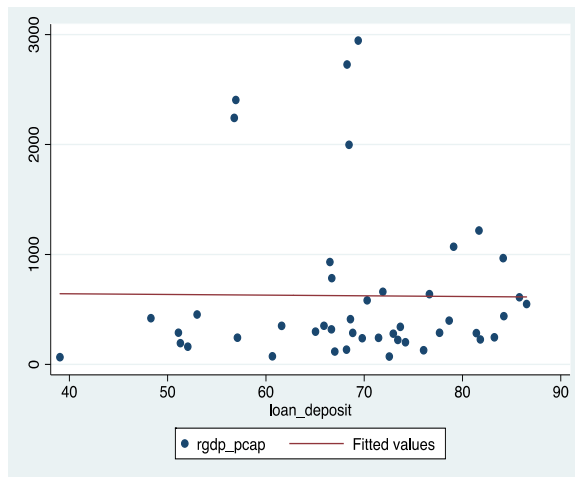
There are several ways to detect the presence of outliers in a dataset. The first step is usually to display the frequencies and summary statistics of the variables to identify values that immediately stick out (see Table 5.6 under section 5.3 for summary statistics of all the measurement variables). Another method is to use graphical techniques such as scatter plots to identify outliers. Graphical techniques are usually very helpful especially with a small sample size (Williams, 2016). Figure 5.2. shows the two-way prediction plots of the dependent variable (GDP per capita)

with several explanatory variables along with their fitted values and a line of best fit, which makes it easy to identify the outlying cases.

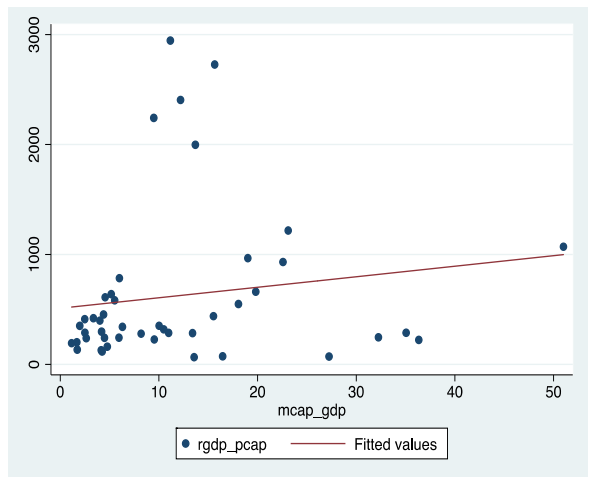
**Figure 5.2: Two Way Prediction Plot of Dependent and Independent Variables**



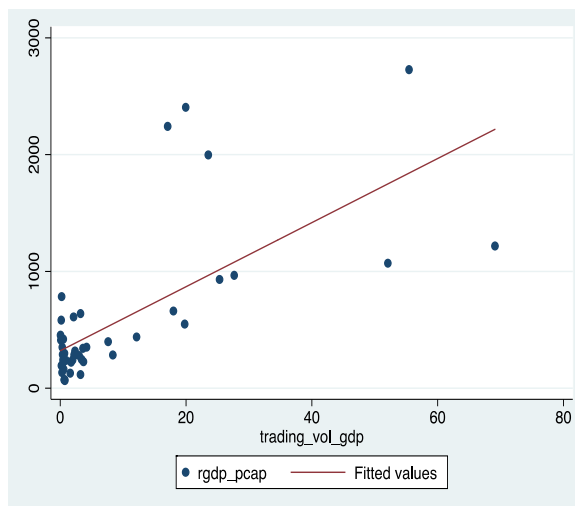
(e) Loan-to-Deposit Ratio



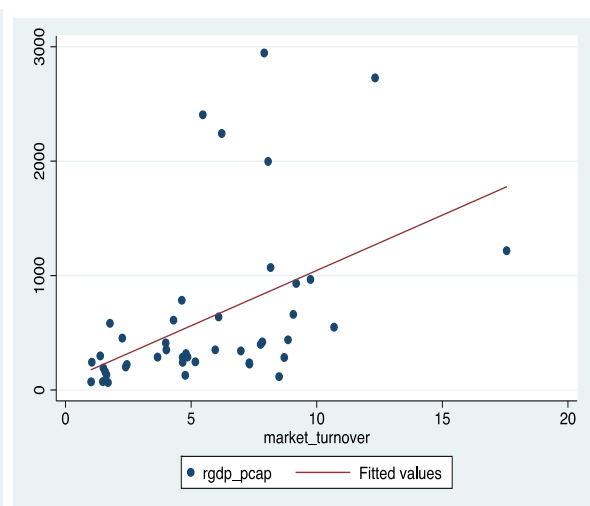
(f) Market Capitalisation/GDP



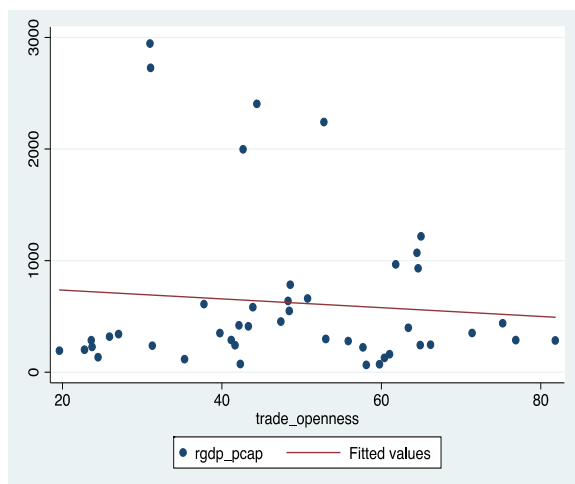
(g) Trading Volume/GDP



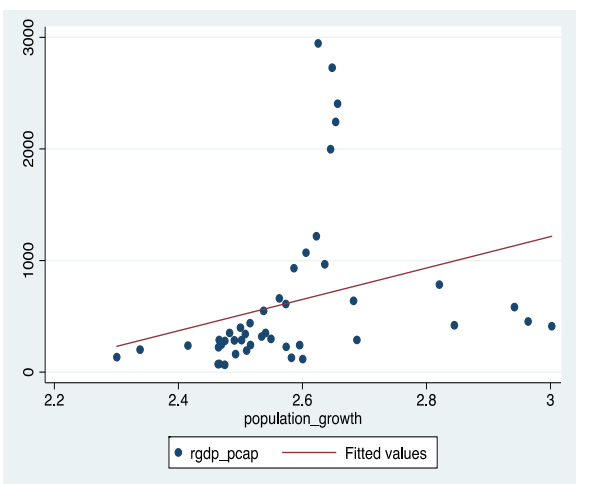
(h) Market Turnover



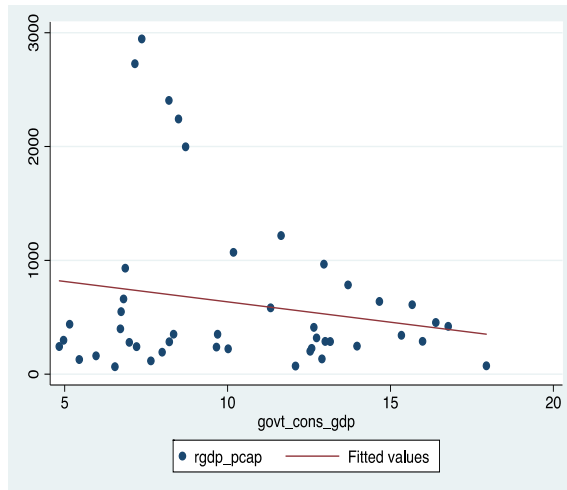
(i) Trade Openness



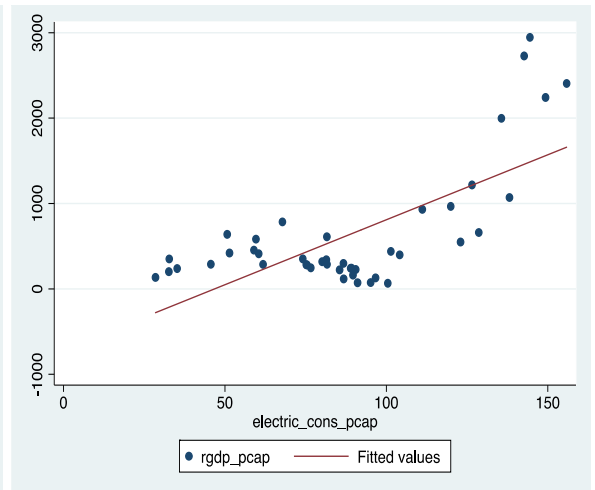
(j) Population Growth



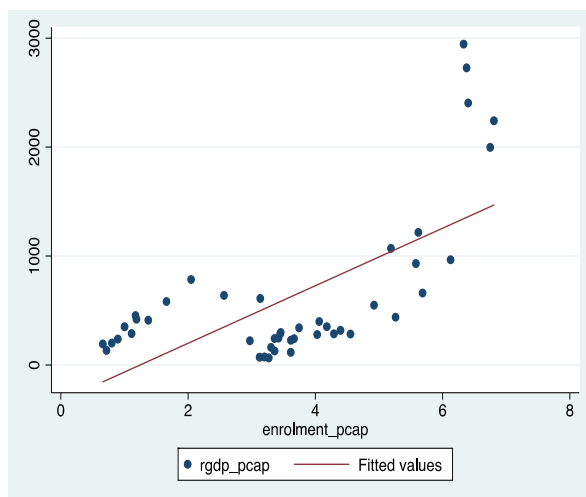
(k) Government Consumption/GDP  
Capita



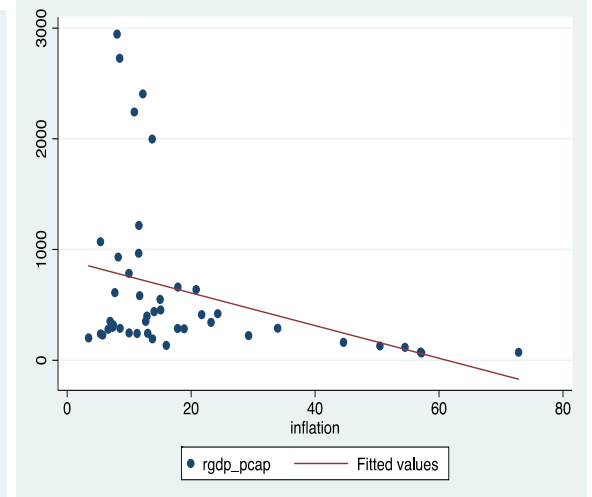
(l) Electric Consumption Per  
Capita



(m) Enrolment Per Capita



(n) Inflation



In addition to scatter plots, STATA also offers several post-estimation commands that can help in identifying outliers. Some of them would be employed in this study to help identify outlying cases statistically. Apart from graphical techniques, residual statistics can also be computed using the predict command in STATA, which will help to provide some information on discrepancy (i.e. the difference between the predicted dependent variable and the observed independent variable). In STATA, standardized and studentized residuals are usually applied to adjust residuals for the purpose of outlier identification (Williams, 2016).

#### 5.2.3.2. Dealing with Outliers in this Study

In dealing with outliers in this study, care was taken to ensure that there were no coding errors and that missing values were correctly coded. Further, the researcher

will run the regression both with and without the outlying cases and where results are significantly different, these will be taken note of and perhaps the outlying cases may be excluded or accounted for by adding more explanatory variables (such as interaction terms). However, outliers may represent very important information about the relationship between variables so that a better approach might be to offer adequate explanations for the values of cases, rather than excluding them (Williams, 2016). For example, in chapter three, several explanations were offered for the trend of the FDI and financial development variables, which may give an indication as to why outlying cases exist in the dataset. One of the predominant factors is the implementation of the structural adjustment program (SAP) of the government in the mid-to late 1980s, which had far-reaching implications, such as high inflation that resulted up to the early 1990s, due to austerity measures that were in place at the time. Another factor that may have caused some outlying cases in the financial development indicators is the consolidation of the banking sector between 2004 to 2005, which led to increasing capital market activities and new highs in indicators of market development such as market capitalisation, trading volume and market turnover. The banking recapitalisation exercise also led to increased M2/GDP and credit to the private sector in the mid to late 2000s as banks were now bigger and more capitalised. These dynamics are reflected in the analyses provided in the econometric estimations.

#### 5.2.4. Testing for Multicollinearity

Multicollinearity is a situation in which the regressors in a linear regression model are highly correlated with each other. Multicollinearity can be either perfect or imperfect. If multicollinearity is perfect (where the regressors are perfectly inter-related), the regression coefficients of the independent variables are indeterminate, and their standard errors are infinite (Gujarati, 2003). If multicollinearity is less than perfect (where the regressors are imperfectly inter-related), the regression coefficients, though determinate, holds large standard errors (relative to the coefficients themselves). This implies that the coefficients cannot be estimated with great accuracy or precision (*ibid*).

##### 5.2.4.1. Causes of Multicollinearity

There are numerous sources of multicollinearity. As noted by Montgomery and Peck (1982:289–290), multicollinearity may be caused by the following factors: (1)



*inadequacies in the data collection method*, such as, sampling over a narrow range of the values assumed by the regressors in the population. (2) *Constraints on the specified model or in the population being sampled*. Such as, in the regression of electricity consumption on income and household size as dependent variables, there is a physical constraint in the population in the sense that families with lower incomes generally have smaller homes than families with higher incomes. (3) *An overdetermined model*. This occurs in cases where the model contains more explanatory variables than the number of observations. Another reason for multicollinearity particularly in time series data could be that the regressors comprised in the model share a common trend; which means they all increase or decrease over time. Therefore, in the regression of consumption expenditure on population, income and wealth, the regressors population, income and wealth may all be rising over time at more or less the same rate, which leads to collinearity among these variables.

#### 5.2.4.2. *Consequences of Multicollinearity*

Estimating a regression in the presence of multicollinearity may be misleading. This is because the standard errors increase in tandem with multicollinearity. The presence of multicollinearity leads to confidence intervals for coefficients being very wide and t-statistics will tend to be very small (Williams, 2015). Coefficients will have to be larger in order to be statistically significant. That means that it will be more difficult to reject the null hypothesis in the presence of multicollinearity. It is important to note however, that large standard errors can be caused by things other than multicollinearity. When there is a high and positive correlation between two independent variables, there will tend to be a high and negative correlation between their slope coefficient estimators. When for example,  $b_1$  is greater than  $\beta_1$ ;  $b_2$  will tend to be less than  $\beta_2$ . Furthermore, a different sample will likely produce the contrary result. The implication is that if one overestimates the effect of one parameter, one will possibly underestimate the effect of the other. Thus, coefficient estimates tend to be very unstable from one sample to another (Williams, 2015).

#### 5.2.4.3. *Detecting Multicollinearity*

Multicollinearity can be detected in several ways, according to Gujarati (2003). First, if one observes a *high  $R^2$  but few significant  $t$  ratios* in the regression output. This is one of the main symptoms of multicollinearity. If  $R^2$  is high, such as, in excess of 0.8, the F-test in most cases will reject the hypothesis that the partial slope

coefficients are simultaneously equal to zero. But the individual t-tests will indicate that none or very few of the partial slope coefficients are statistically different from zero. A second way to detect multicollinearity is when one observes *high pairwise correlations among regressors*. The rule of thumb is that if the pair-wise or zero-order correlation coefficient between two regressors is high, such as in excess of 0.8, then multicollinearity will portend a serious problem (Gujarati, 2003). See correlation matrix of all measurement variables in Table 5.7 in section 5.3. Another useful way to detect multicollinearity is to compute the variance inflation factor (VIF). The larger the value of  $VIF_j$ , the more “troublesome” or collinear the independent variable. As a rule of thumb, if the  $VIF_j$  of a variable exceeds 10, which will happen if  $R^2_j$  exceeds 0.90, that variable is said be highly collinear (Kleinbaum et al., 1988:210). The initial VIF for the regressors is shown in Table 5.4 below.

**Table 5.4: Variance Inflation Factor (VIF) – Initial Results**

Variable	VIF	R-squared
Real FDI	14.96	0.9331
FDI/GDP	4.06	0.7538
M2/GDP	20.58	0.9514
Private Credit/GDP	24.24	0.9587
Loan-Deposit ratio	2.61	0.6162
Market Capitalisation/GDP	4.64	0.7847
Trading Volume/GDP	8.13	0.8770
Market Turnover	4.90	0.7959
Trade Openness	2.73	0.6334
Population Growth	2.94	0.6602
Government Consumption/GDP	3.52	0.7157
Electric Consumption per capita	14.44	0.9308
Enrolment per capita	16.18	0.9382
Inflation	2.26	0.5581
<b>Mean VIF</b>	<b>8.94</b>	
<b>Condition Number</b>	<b>18.07</b>	

**Source:** Stata Output for Collinearity Diagnostics

As can be seen from Table 5.4, ten of the independent variables have a VIF of less than 10, which is below the threshold. This implies that these variables are not collinear. However, five variables have a VIF above 10, which indicates that multicollinearity is likely to be a problem if these variables are included in the

regression estimation. One possible reason for the relatively high collinearity in the affected variables, as mentioned earlier, is the likelihood of a joint movement in variables like M2/GDP and Private sector credit/GDP (which are both indicators of financial development measured against the GDP) over time. The pairwise correlation test shows that the correlation between these two variables to be quite high (0.74). But not much can be said about enrolment per capita, electricity consumption per capita, and real FDI. Overall, the mean VIF for all variables is 8.94, which is less than the threshold. Sometimes condition indices, the condition number and eigenvalues will be referred to when examining multicollinearity. However, the condition number gives an overall sense of the extent of multicollinearity. The condition number ( $\kappa$ ) the largest value in the condition index. It is equivalent to the square root of the largest eigenvalue ( $\lambda_{\max}$ ) divided by the smallest eigenvalue ( $\lambda_{\min}$ ). When there exists no collinearity at all, the condition indices, condition number and eigenvalues will all equal one. As collinearity increases, eigenvalues will become both greater and smaller than 1 (eigenvalues close to zero is an indication of a multicollinearity problem). While the condition number and the condition indices will increase. An informal rule of thumb is that if the condition number is 15, one should be concerned about multicollinearity. If it is greater than 30, then multicollinearity becomes a very serious concern (Belsley et al, 1980). The condition number for the collinearity test conducted above is 18, which indicates some level of concern.

#### *5.2.4.4. Dealing with Multicollinearity*

According to Williams (2015), there are several ways to deal with multicollinearity. One is to increase the sample size in order to reduce standard errors and make it less likely for the results to be the effect of a sampling bias. A second way is to create new variables from the existing variables that may serve as a proxy for the collinear variables using information from prior research. A third way is to use factor analysis or some other means as to create a scale from the independent variables. In Stata, relevant commands include factor and alpha. It is sometimes recommended that the researcher “drops” the affected variable(s). However, if the variable is a key component of the model, this could lead to a specification error, which can be even more of a problem than multicollinearity.

In response, it has been deemed necessary to drop two financial development variables (Private Sector Credit/GDP and Market Turnover) in any OLS regression

since they are both duplicate measures of financial deepening and market liquidity respectively, the others being M2/GDP and Trading Volume. The removal of these two variables produces a drastic reduction in the VIF for M2/GDP (which has now become 4.86 and in the overall VIF, now 5.40). See new VIF results in Table 5.5. The condition number also falls to 11.16, implying that multicollinearity is now less likely to be a problem in the econometric estimation, though two seemingly unrelated variables – electric consumption per capita and enrolment per capita are still highly collinear.

**Table 5.5: Variance Inflation Factor (VIF) – Final Results**

Variable	VIF	R-squared
Real FDI	7.98	0.8746
FDI/GDP	3.68	0.7283
M2/GDP	4.86	0.7944
Loan-Deposit ratio	1.95	0.4862
Market Capitalisation/GDP	4.07	0.7542
Trading Volume/GDP	4.55	0.7802
Trade Openness	2.48	0.5965
Population Growth	2.86	0.6500
Government Consumption/GDP	3.43	0.7085
Electric Consumption per capita	12.78	0.9218
Enrolment per capita	14.44	0.9307
Inflation	2.12	0.5292
<b>Mean VIF</b>	<b>5.40</b>	
<b>Condition Number</b>	<b>11.16</b>	

**Source:** Stata Output for Collinearity Diagnostics

### 5.3. Descriptive Statistics and Univariate Analysis

This section presents results of the summary statistics and univariate analysis of the measurement variables using correlation techniques.

#### 5.3.1. Characteristics of Measurement Variables

Table 5.6. presents the summary statistics of the measurement variables, namely mean, standard deviation, minimum and maximum values.

### 5.3.1.1. Characteristics of Growth Indicators

From table 5.6, it can be observed that Nigeria's real GDP per capita averaged US\$624 between 1970 and 2014. It was lowest in 1993 at US\$65.5 and highest in 2014 at US\$2,945. Thus, Nigeria has experienced substantial growth in its GDP per capita. Nigeria's GDP grew by an average of 6.3% in the 10 years between 2005 and 2015 (Ministry of Budget and National Planning, 2017). Between the same period, Nigeria's population grew by an average of 2.63%, implying that per capita GDP grew at a faster rate than population growth. However, as reviewed in chapter 3, Nigeria entered recession in 2016 owing to the decline in oil prices and foreign exchange earnings. Mean non-oil GDP per capita was US\$742.85 between 1970 to 2014, reaching a peak of US\$1,741 as far back as 1980. This can be attributed to the relatively high contribution of non-oil sectors especially Agriculture to economic growth in earlier periods.

**Table 5.6. Summary Statistics of Measurement Variables**

Variable	Obs.	Mean	Std. Dev	Min.	Max.
Real FDI	45	1,808,353,613.18	2,317,026,606.64	-665,187,947.83	7,948,445,265.09
FDI/GDP	45	2.97	2.63	-1.15	12.65
Real GDP PCAP	45	624.44	717.16	65.57	2,945.20
RNO GDP PCAP	44	742.85	520.54	62.55	1741.84
M2/GDP	45	20.62	6.42	9.36	37.96
Private Credit/GDP	45	12.54	6.22	3.31	36.89
Loan/Deposit	45	68.99	11.01	39.04	86.52
MCAP/GDP	45	11.91	10.86	1.15	51.00
Trading Vol/GDP	44	9.14	15.74	0.05	69.11
Market Turnover	45	5.65	3.45	1.02	17.56
Trade Openness	45	48.27	16.13	19.62	81.81
Population Growth	45	2.58	0.15	2.30	3.00
Govt. Cons./GDP	45	10.31	3.65	4.83	17.94
Electric Cons. PCAP	44	88.48	33.16	28.49	155.85
Enrolment PCAP	45	3.61	1.80	0.66	6.81
Inflation	45	18.87	16.35	3.46	72.84

**Source:** Stata Output for Summary Statistics

### 5.3.1.2. Characteristics of FDI and FDI Determinants in Nigeria

Real FDI flows averaged US\$1.8 billion between 1970 to 2014, reaching a maximum of US\$7.9 billion in 2011 during the windfall gains from rising oil prices. Nominal FDI was US\$8.9 billion in 2011 but fell sharply to US\$3 billion in 2015 and then increased

to US\$4.45 billion in 2016, as a result of the prospects for economic recovery. As noted in chapter 3, FDI as a proportion of GDP averaged 2.97% in the entire period, reaching a peak of 12.56% in 1994 (see table 5.6).

On the determinants of FDI, trade openness (which is the ratio of imports and exports to GDP) averaged 48% between 1970 and 2014, from a low of 19.62% in 1970 to a peak of nearly 82% in 2001. The relatively high value of trade in the late 1990s and early 2000s can be attributed to the promulgation of the Nigerian Investment Promotion Commission (NIPC) Act which liberalised foreign investment and opened up all the sectors to foreign participation and 100% foreign ownership (except the oil sector). Population growth has been steadily increasing at an average of 2.58%, from a country of 56 million people in 1970 to 177 million in 2014, and 184 million people as of 2016, making Nigeria the largest consumer market and one of the largest international markets for FDI in Africa. The ratio of Government consumption to GDP, which is often used as a measure of government size, averaged 10.31% in the period under review, with a low of 4.8% in 1991 and a high of 17.9% in 1994. Electric consumption per capita, a measure of infrastructural development, ranged between 28.49 Kwh per capita to 155.85 Kwh per capita between 1970 and 2014. Enrolment per capita (the ratio of secondary and tertiary school enrolment as a percentage of population), a measure of human capital development, also increased steadily during the period, ranging between 0.66% and 6.8%. In terms of macroeconomic stability, inflation averaged 18.87% between 1970 and 2014, from a low of 3.46% in 1972 to a high of 72% in 1995. This relatively high level of economic instability may have partly accounted for the volatility in FDI flows to Nigeria over the period.

#### *5.3.1.3. Characteristics of Financial Development Indicators*

The ratio of liquid liabilities (M2)/GDP, which measures financial depth ranged between 9.36% to 37.96% between 1970 and 2014, averaging 20.62% over this period. The highest value of M2/GDP was recorded in 2009, after the consolidation period, driving inflationary pressures and this prompted the Central Bank of Nigeria to maintain a tight monetary policy stance between 2010 and 2014 as discussed in chapter 3. Private sector credit to GDP, another financial deepening indicator, ranged between 3.31% to 36.89% in the period under review, averaging 12.54%. This shows a considerable growth in the role of Nigerian financial intermediaries in channelling funds to private market participants for investment purposes. Another

banking sector indicator, loan-to-deposit ratio, which measures credit allocation and misallocation, ranged from 39% to 86.5% in the period under review, and averaged 69%. This shows that commercial bank loans are a very sizeable proportion of public deposits placed in these institutions and represents a relatively high level of financial intermediation in the economy.

With respect to market-based indicators, market capitalisation to GDP, which is a measure of stock market size, ranged from 1.15% in 1970 to 51% in 2007, before plunging downwards to 11.16% in 2014, owing to the effect of the financial crisis. The height of 51% recorded in 2007 was due to the recapitalisation exercise of the banking sector when many banks flooded the capital market with public share offerings. As noted in chapter 3, the Nigerian capital market experienced a loss of over 70% of its value due to the financial crisis. Trading volume as a percentage of GDP, which is a measure of market liquidity, averaged 9.14% in the entire period, rising from a low of 0.05% in 1977 to 69.11% in 2008. Another measure of market liquidity, market turnover (the value of equities traded/market capitalisation), ranged from 1.02% in to 17.56% over the same period.

### 5.3.2. Correlation of Measurement Variables

Correlation is a vital way of numerically quantifying the relationship that exists between two variables (Koop, 2009). Correlation measures the proportion of variation in one variable (X) that matches up with variation in another variable (Y). The correlation ( $r$ ) between two variables X and Y always lies between -1 and 1. Positive values of  $r$  indicates the existence of a positive correlation between X and Y. Negative values indicate the existence of a negative correlation;  $r = 0$  means that there is no correlation between X and Y. Larger positive values of  $r$  indicate the existence of stronger positive correlation;  $r = 1$  indicates the existence of perfect positive correlation; larger negative values of  $r$  indicate the existence of stronger negative correlation;  $r = -1$  indicates the existence of perfect negative correlation. Positive or negative correlation coefficients greater than 0.8 (in absolute terms) represent high values of correlation and would be taken to mean the variables are highly collinear (Gujarati, 2003). Table 5.7 shows the correlation matrix of all measurement variables used in this study for the period 1970-2014. It can be observed that most of the variables exhibit low correlation with each other, with a few exceptions, which will be explained later. Real GDP per capita has a strong

positive relationship with real FDI ( $r=0.79$ ), indicating that over the study period, high economic growth in Nigeria tends to generally reflect high growth in FDI in line with studies that found a positive long run relationship between FDI and growth (e.g. Egbo and Onwumere, 2011; Danja, 2012). However, it should be noted that correlation does not necessarily imply causality, which means that the relationship between real FDI and GDP per capita may be caused by other underlying factors as suggested in chapter 2 (such as absorptive capacity of domestic institutions, human capital, financial development, physical infrastructure, institutional quality, etc). However, the ratio of FDI-to-GDP ( $r=-0.27$ ), trade openness ( $r=-0.04$ ), government consumption-to-GDP ( $r=-0.15$ ), and inflation ( $r=-0.34$ ) all have a negative association with real GDP per capita over the study period. All of the financial development variables have a positive association with real GDP per capita (M2/GDP [ $r=0.09$ ] Private credit/GDP [ $r=0.54$ ], Market capitalisation to GDP [ $r=0.16$ ], Trading Volume to GDP [ $r=0.68$ ] and Market Turnover [ $r=0.47$ ]), with the exception of commercial bank loan-to-deposit ratio ( $r=-0.07$ ) with a low negative association. This implies that over the study period, high growth in real GDP per capita generally tends to reflect high growth in financial development.

Interestingly, real FDI ( $r=-0.17$ ) and FDI/GDP ( $r=-0.62$ ) ratio as well as most measures of financial development have a negative association with real non-oil GDP per capita. This suggests that, over the study period (1970-2014), on average, high levels of FDI tend to be associated with low levels of non-oil sector growth, which might be indicative that FDI may have particularly been skewed towards the extractive industries (especially the oil and gas sector) as opposed to other non-oil sectors such as Agriculture, Manufacturing, Construction and Services. However, this correlation result is for the entire period from 1970-2014. As noted in chapter 3, there has been some diversification of FDI into the manufacturing and service sectors in recent years. For example, FDI to manufacturing rose to 40.7% over the period from 2005-2009, comparing favourably with FDI to Mining and Quarrying sector at 22.6% (see Table 3.3. in chapter 3).

Real FDI has a positive relationship with all financial development variables, and especially strong positive relationship with private credit/GDP ( $r=0.73$ ) and stock market trading volume/GDP ( $r=0.82$ ). This suggests that higher levels of FDI tend to be associated with higher levels of financial development, i.e. banking and stock market development. This appears to show that FDI is attracted to economies with



active or developing financial markets and that financial development may be enhanced where FDI levels are rising. However, this does not provide further information on whether there is causality between FDI and the development of financial markets, which will be tested in chapter 6 using Granger Causality.

In line with economic theory, M2/GDP has a positive relationship with inflation ( $r=0.06$ ), suggesting that money supply and inflation tend to move in the same direction, though this association is not strong over the study period. M2/GDP, however, has a strong positive relationship with private credit/GDP ( $r=0.74$ ), which is expected as they both measure the size of liquidity and leverage in the banking sector respectively, which tends to move in similar directions most of the time. Broad money supply (M2/GDP) is also positively linked with both measures of market liquidity, trading volume/GDP ( $r=0.24$ ) and market turnover ( $r=0.33$ ).

**Table 5.7. Correlation Matrix of Measurement Variables**

	rdgp_pcap	rno_gdp	real_fdi	fdi_gdp	m2_gdp	priv_credit	loan_deposit	mcap_gdp	trading_vol_gdp	market_turnover	trade_openness	population_growth	govt_cons_gdp	electric_cons_percap	enrolment_percap	inflation
rdgp_pcap	1.00															
rno_gdp_pcap	0.17	1.00														
real_fdi	0.79	-0.17	1.00													
fdi_gdp	-0.27	-0.62	0.10	1.00												
m2_gdp	0.09	0.03	0.19	0.02	1.00											
priv_credit_gdp	0.54	-0.12	0.73	0.05	0.74	1.00										
loan_deposit	-0.04	-0.12	0.12	-0.15	0.23	0.36	1.00									
mcap_gdp	0.16	-0.40	0.45	0.33	-0.03	0.30	0.35	1.00								
trading_vol_gdp	0.68	-0.08	0.82	-0.01	0.24	0.67	0.27	0.50	1.00							
market_turnover	0.47	-0.04	0.59	-0.21	0.33	0.61	0.43	0.23	0.78	1.00						
trade_openness	-0.04	-0.59	0.28	0.37	-0.01	0.15	0.16	0.48	0.19	0.12	1.00					
population_growth	0.30	0.45	0.07	-0.42	0.23	0.10	-0.22	-0.19	0.08	0.10	-0.05	1.00				
govt_cons_gdp	-0.15	0.56	-0.24	-0.16	0.22	0.00	-0.01	-0.01	-0.19	-0.14	-0.38	0.26	1.00			
electric_cons_percap	0.68	-0.46	0.80	0.22	0.29	0.66	0.13	0.48	0.68	0.48	0.32	0.04	-0.43	1.00		
enrolment_percap	0.65	-0.44	0.79	0.11	0.37	0.73	0.26	0.44	0.66	0.57	0.32	-0.09	-0.44	0.91	1.00	
inflation	-0.34	-0.38	-0.25	0.55	0.06	-0.15	-0.34	0.00	-0.27	-0.30	0.07	-0.08	0.03	-0.01	-0.15	1.00

Source: Stata Output for Summary Statistics

In terms of correlation among other drivers of economic growth in Nigeria, the ratio of Government consumption to GDP is positively correlated with population growth ( $r=0.26$ ), implying that government consumption expenditure tends to be higher as population growth increases. Enrolment per capita and electric consumption per capita are highly collinear at ( $r=0.91$ ), implying that higher levels of school enrolment per capita tend to be strongly associated with higher levels of electricity consumption per capita. Theoretically, the reason for this is not clear, but it may be related to the fact that these two variables naturally grow with the population of any country and expressing both of them as a ratio of population increases the chances of them being highly correlated. As explained in section 5.2.4, since the mean VIF for all variables used is under 10 and the condition number is under 15, multi-collinearity is unlikely to be a problem in the econometric estimations based on OLS.

#### 5.4. Chapter Summary

This chapter has examined the descriptive analysis of variables used in the study. The preliminary tests conducted on the measurement variables showed that most of the variables (12) are non-normal, while only 4 are normally distributed. After performing tests of data transformation using ladder of powers, the log transformation of most of the non-normal variables was found to be normal. This study utilises the log of real GDP per capita and real non-oil GDP per capita in the estimations in line with earlier studies on FDI and economic growth in Nigeria. However, the rest variables will be used in their current form as they have already been transformed into percentages. The results of the unit root tests showed that most (11) of the measurement variables are stationary at level, while six are non-stationary, i.e. integrated of order  $I(1)$ . As there exists some outlying cases in the dataset, the econometric estimations will include some adjustments to take into consideration the presence of outliers to observe changes in results with or without the outlying cases. In addition, since adequate explanations have been offered on the trend of the FDI and financial development variables in chapter 3, it might be that the presence of these outlying cases provide some useful information on the nature of FDI, financial development and economic growth in Nigeria. So, these will be appropriately captured in the interpretation of the econometric results. The initial inclusion of all regressors indicated that multicollinearity is likely to be a problem in the regression estimation since some of the variables had a VIF above 10 and the

condition number was above 15. However, with the exclusion of two duplicate measures of financial deepening and liquidity, the mean VIF and condition number dropped significantly below 10 and 15 respectively, indicating that multi-collinearity is unlikely to be a problem in the econometric estimation when these variables are excluded. The univariate analyses of the measurement variables were also conducted to show the statistical properties of variables and the relationships between them in order to set the tone for the empirical analysis and discussion, which is presented in the next chapter.

## Chapter 6

### Empirical Data Analysis and Discussion

#### 6.1. Introduction

Having examined the descriptive characteristics of the data in chapter 5, this chapter presents the results of the main regression models and discusses the findings in line with the relevant literature in order to answer the research questions of the study. The chapter examines (1) the link between FDI and growth (2) how financial market development shapes this linkage, and (3) the causality between FDI and financial development and between financial development and growth. Section 6.2., 6.3, and 6.4 presents the results of the main regression models. The main methods used in this chapter are cointegration analysis and error correction model (ECM), granger causality and ordinary least squares. As noted in chapter 4, cointegration analysis is used to establish whether there is a long-run relationship between FDI, growth and financial development variables, while granger causality examines the causal relationships between FDI and growth, financial development and growth and FDI and financial development. OLS method is used here to examine the linkages between growth, FDI and FDI interaction with financial development. Section 6.5 carries out some robustness checks while the chapter concludes in section 6.6.

#### 6.2. Long Run Relationship between FDI and Growth

This sub-section examines whether there are cointegrating relationships between FDI and economic growth as well as other determinants of growth. Given that some of the variables in the current study are nonstationary (as seen in chapter 5), one might conclude that the presence of stochastic trends may imply that some of the economic variables used in this study are related over time. The Johansen's method has been used to determine the number of cointegrating equations. The Johansen's test is appropriate for testing co-integration among multiple variables (Fabozzi et al., 2014) The optimal lag length was automatically determined using the varsoc functionality in Stata following recommendations by Tsay (1984), Paulsen (1984) and Nielsen (2006). Co-integration only takes place if the variables are non-

stationary. Thus, including only the non-stationary variables - i.e. real GDP per capita, FDI/GDP, trading volume, trade openness and electric consumption per capita - in a model with two lags, we reject the null hypothesis of no cointegration and conclude that there is at least one long run relationship between real GDP per capita and one of these measurement variables (see Table 6.1).

**Table 6.1: Johansen Tests for Cointegration**

Trend: Constant			Number of Obs. = 41		
Sample: 1973-2013			Number of Lags = 2		
Maximum rank	Parms	LL	Eigenvalue	Trace Statistic	5% Critical Value
0	30	-808.71	-	82.5878	68.52
1	39	-790.90	0.5804	46.9770*	47.21
2	46	-777.18	0.4880	19.5268	29.68
3	51	-770.86	0.2649	6.9080	15.41
4	54	-767.42	0.1548	0.0117	3.76
5	55	-767.41	0.0003		

\* implies 1 cointegrating relationship.

Given the presence of at least one cointegrating relationship among the measurement variables using the Johansen's test, it was important to estimate the test regression and the error correction model (ECM) using the Engle-Granger two-step approach (Engle and Granger, 1987) to see the direction of long run causality. The Engle-Granger test for cointegration is a two-step residual-based test performed in STATA using the **egranger** command (Schaffer, 2010). It is conducted when it is suspected that there is cointegration between a dependent variable and a set of independent variables. The test statistic is the traditional OLS t-statistic on the lagged residual. In the first instance, real GDP is regressed against the other non-stationary variables - FDI/GDP, trading volume, trade openness and electric consumption per capita and the two-step ECM is also calculated to see which of the variables may have a long run relationship with economic growth. The results are shown in Table 6.2. The results from the Engle Granger two step ECM show that only trading volume/GDP is cointegrated with real GDP per capita and it is significant at the 1% level. The Engle Granger first step regression show a positive relationship between trading volume/GDP and real GDP per capita, implying that higher levels of stock market liquidity (a measure of financial market development) drive long run economic growth in the Nigerian economy. This is consistent with studies that show that better financial systems accelerate the pace of economic growth and capital

accumulation (e.g. McKinnon, 1973, Shaw, 1973; King and Levine, 1993a&b; Levine and Zervos, 1998; Beck and Levine, 2004). In particular, this finding is consistent with studies that show that capital market development in Nigeria is positively linked with long run economic growth (Osinubi, 2002; Aigbovo and Izekor, 2015). This is further buttressed by the rising level of financial transactions on the stock market, especially industrial equities in the Nigerian stock exchange over the past three decades as discussed in chapter 3 (CBN Statistical Bulletin, 2011).

**Table 6.2: Engle and Granger Two-step ECM estimation (DV: RGDP Per Capita)**

Number of lags = 1		N (1st step) = 43	
		N (2nd step) = 42	
Engle-Granger 1st-step regression			
DV: RGDP Per Capita	Coef.	Std. Error	p value
Constant	3.046	229.246	0.989
FDI/GDP	-81.565***	23.168	0.001
Trading Volume/GDP	11.775**	4.927	0.022
Trade Openness	-6.513	3.957	0.108
Electric Cons. Per Capita	11.897***	2.509	0.000
Engle-Granger 2-step ECM			
	Coef.	Std. Error	p value
Constant	76.863	30.820	0.018
E-G Residual (L1)	0.077	0.099	0.436
RGDP Per Capita (LD)	0.126	0.188	0.507
FDI/GDP (LD)	5.469	13.515	0.688
Trading Volume/GDP (LD)	-9.736***	3.022	0.003
Trade Openness (LD)	-2.529	2.655	0.347
Electric Cons. Per Capita (LD)	-2.013	2.693	0.018

\*\*\* significant at 1%, \*\* significant at 5%

In the same vein, FDI/GDP is regressed against real GDP per capita and the other non-stationary variables - trading volume, trade openness and electric consumption per capita and the two-step ECM is also calculated to see which of the variables may have a long run relationship with FDI. The results are shown in Table 6.3.

**Table 6.3: Engle and Granger Two-step ECM estimation (DV: FDI/GDP)**

Number of lags = 1		N (1st step) = 43	
		N (2nd step) = 42	
Engle-Granger 1st-step regression			
DV: FDI/GDP	Coef.	Std. Error	p value
Constant	-1.099	1.382	0.431
Real GDP Per Capita	-0.003***	0.001	0.001
Trading Volume/GDP	-0.001	0.032	0.972
Trade Openness	0.021	0.025	0.391
Electric Cons. Per Capita	0.056***	0.017	0.002
Engle-Granger 2-step ECM			
	Coef.	Std. Error	p value
Constant	-0.052	0.339	0.878
E-G Residual (L1)	-0.619	0.187	0.002
FDI/GDP (LD)	-0.071	0.172	0.684
Real GDP Per Capita (LD)	-0.001	0.002	0.697
Trading Volume/GDP (LD)	0.042	0.033	0.218
Trade Openness (LD)	-0.023	0.030	0.445
Electric Cons. Per Capita (LD)	-0.012	0.031	0.690

\*\*\* significant at 1%, \*\* significant at 5%

The combined ECM results in Table 6.2 and 6.3, however, suggest that no long run relationship exists between real GDP per capita and FDI/GDP in either directions. This result is consistent with some studies that found no long run relationship between FDI and economic growth in Nigeria (e.g. Olatunji and Shahid, 2015). By contrast, it disproves studies which show that long run economic growth in Nigeria is linked to attraction of FDI and the influence of other growth enhancing variables such as trade and domestic investment (e.g. Nwosa et al., 2011; Egbo and Onwumere, 2011; Awolusi, 2012). In fact, the E-G first step regression in both Tables 6.2 and 6.3 show that FDI/GDP is negatively associated with real GDP per capita in Nigeria, supporting findings from some older studies that FDI has either a negative effect or a small effect on growth and domestic investment (e.g. Oyinlola, 1995; Adelegan, 2000; Akinlo, 2004). Many of the earlier studies have noted that the macroeconomic policies that were in place prior to the structural adjustment program (SAP) have not discouraged foreign investors and thus FDI flows into the country (e.g. Odozi, 1995). Others say that the political regime, inflation rate, sovereign credit rating and huge debt burdens of the country accounted for the variability of FDI (e.g. Ekpo, 1995). Hence, it will be appropriate to disentangle the effect of pre-liberalisation policies to see if capital account liberalisation (which



essentially took effect from 1995 with the promulgation of the NIPC Act) had an impact on economic growth in Nigeria. (These are accounted for in the robustness section of this chapter). Interestingly, table 6.3 shows that electric consumption per capita has a positive impact on both real GDP per capita and FDI/GDP, implying that infrastructural development in effect has a positive and very significant impact on growth in Nigeria contrary to the general notion that poor infrastructure may have inhibited FDI and growth. However, since real GDP per capita and electricity consumption per capita are both measured in per capita terms, this may even out the effect of infrastructure across the population.

### 6.3. Causality Between FDI, Financial Development and Economic Growth

This section estimates the direction of bivariate (pairwise) causality between key variables of interest using the Granger causality technique (Granger, 1969). As noted in chapter 4, Granger causality test is a test that determines whether one variable "Granger-causes" another variable. In other words, it measures whether one thing happens before another and helps to predict it. A variable  $x$  is said to Granger-cause a variable  $y$  if, given the past values of  $y$ , past values of  $x$  are useful for predicting  $y$ . In the current study, three main aspects of causality are tested - causality between FDI and growth, causality between FDI and measures of financial development and causality between measures of financial development and growth. As Granger causality requires that all variables be stationary, all non-stationary variables employed have been made stationary by taking their first difference

#### 6.3.1. Causality Between FDI and Growth

In chapter 4, the causality between real GDP per capita and real FDI was specified in equation 2. Model 1a in Table 6.4 shows the Granger causality Wald tests for the causality between Real GDP per capita and real FDI flows, while model 1b shows the Granger causality Wald tests for the causality between Real Non-Oil GDP per capita and real FDI flows.

**Table 6.4: Granger Causality Wald Tests for FDI and Growth**

<i>Model 1a: Granger Causality Wald Tests for FDI and Growth</i>				
Null Hypothesis	F	No of lags	Obs	Prob> F
Real FDI does not Granger cause Real GDP Per Capita	10.298***	2	37	0.0003
Real GDP Per Capita does not Granger cause Real FDI	7.1185***	2	37	0.0024
<i>Model 1b: Pairwise Granger Causality Tests for FDI and Non-Oil Growth</i>				
Null Hypothesis	F	No of lags	Obs	Prob> F
Real FDI does not Granger cause Real Non-Oil GDP Per Capita	0.537	2	37	0.5889
Real Non-Oil GDP Per Capita does not Granger cause Real FDI	0.576	2	37	0.5669

\*\*\* significant at 1% level

The results in the first Wald test show that the coefficients on the two lags of real FDI that appear in the equation for Real GDP per capita are jointly non-zero. Thus, it is possible to reject the null hypothesis that real FDI does not Granger cause Real GDP per capita. In other words, the lagged values of Real FDI actually Granger cause Real GDP per capita. Similarly, the hypothesis that real GDP per capita does not Granger-cause real FDI can be rejected. Thus, there is evidence to suggest a bi-directional causality between real GDP per capita and real FDI. This finding is consistent with studies that find evidence of either a unidirectional or bidirectional causality between FDI and growth in the short run in Nigeria and elsewhere around the world (e.g. Akinlo, 2004; Chowdhry and Mavrotas, 2006; Turkan and Yetkiner, 2008; Samad, 2009; Awolusi, 2012; Olusanya, 2013). The result is also consistent with those of Olatunji and Shahid (2015) who found that while there is no evidence of a long run relationship existing between FDI and economic growth in Nigeria, there is evidence of a short-run dynamic relationship between FDI and economic growth.

As discussed in the literature, bi-directional causality implies that the relationship between growth and FDI is reinforcing and endogenous. For example, some studies have shown that rapid economic growth in the host country provides high profit opportunities, which then attracts higher domestic and foreign direct investments (Caves, 1996; Zhang, 2000). On another hand, FDI through its spillover effects has direct positive impact on economic growth of the host countries (e.g. Alfaro et al, 2003; Lall and Narulla, 2004; Danja, 2012, etc). But the impact of FDI on growth is conditional on the absorptive capacity of the host economy in terms of financial

development, human capital development, trade openness, infrastructure, institutional quality, and so on (e.g. Wheeler and Mody, 1992; Borensztein et al, 1998; Alfaro et al, 2003, 2004, 2010; Hermes and Lensink, 2003; Makki and Somwaru, 2004; Seck, 2009; Kose et al, 2009; Bekaert et al, 2010, etc). Some of these factors are examined empirically in section 6.4. In addition, Blomstrom et al (1992) found that FDI only has a positive contribution to growth in higher income developing countries and not in lower income countries (where income is measured in terms of per capita income). Nigeria is described by the World bank as a lower middle-income country and has been among the top 5 FDI destinations in Africa over the past three decades. Yet it is not clear whether long run economic growth can be attributed at least in part to the spillover benefits of FDI. This study has instead shown a negative long run association between FDI and growth, whilst the country enjoys short run dynamic relationship between FDI and growth.

Model 1(b) in table 6.4 looks at the causality between FDI and non-oil growth. As remarked earlier in chapter 4, given that Nigeria is mainly dependent on oil exports, it is helpful to disentangle the effect of oil from its real GDP to see whether FDI inflows have an impact on the non-oil sectors (such as manufacturing, agriculture, and services sectors). The results in the second Wald test shows that the coefficients on the two lags of real FDI that are in the equation for real non-oil GDP per capita are jointly zero. Therefore, the null hypothesis that real FDI does not Granger cause real non-oil GDP per capita cannot be rejected. Likewise, the null hypothesis that coefficients on the two lags of real non-oil GDP per capita in the equation for real FDI are jointly zero cannot be rejected. Consequently, we cannot reject the hypothesis that real non-oil GDP per capita does not Granger cause real FDI. Alternative lags were specified in both cases, but these did not change the results. In other words, there is no evidence to suggest causality between real FDI and real non-oil GDP per capita in both directions. This is consistent with studies that show that FDI does not have any significant impact on the non-oil sectors; such as agriculture (e.g. Akande and Biam, 2013; Idowu and Ying, 2013) and banking (Korna et al, 2013). However, it is inconsistent with studies that show that FDI has a positive and strong relationship with output growth in the manufacturing sectors (e.g. Abdul and Barnabas, 2012; Anowor et al, 2013; Ekienabor et al, 2016). The results also do not agree with studies that show that FDI has a positive impact on growth in the telecoms sector (e.g. Ezeanyej and Ifebi, 2016). Since the non-oil

sector means any sector outside of the extractive industries (such as oil and gas), the results of the current study is limited in the sense that it categorises all these non-oil industries into one group based on the data collected when in fact, it may not be sufficient to conclude that FDI has no positive impact on each of the non-oil sectors separately. However, looking at the flow of FDI to individual sectors in Nigeria (as reviewed in chapter 3), majority of the FDI flows in Nigeria has traditionally been in the oil and manufacturing sectors, and more recently the services sector, mainly driven by the telecoms industry which has seen tremendous growth as a result of the proliferation of mobile technologies and the upsurge in mobile phone subscriptions in the past decade. In addition, as many of these other studies are based on datasets spanning different time periods, their conclusions are only limited to the time periods examined and may not be generalisable over the long run.

### 6.3.2. Causality Between Financial Development and Growth

Before examining the moderating effect of financial development on the relationship between FDI and growth, it is essential to establish whether there is causal link between financial development and growth. Thus, each of the six financial development variables (M2/GDP, Loan Deposit, Private Credit/GDP MCAP/GDP, Trading Volume/GDP and Market Turnover) are tested against real GDP per capita to examine the direction of causality. Model 2a in Table 6.5 shows the results of the causality between banking sector development indicators and growth, while model 2b shows the results of the causality between stock market development indicators and growth.

**Table 6.5. Causality Between Financial Development and Growth**

<i>Model 2a: Pairwise Granger Causality Tests for Banking Sector Development and Growth</i>				
Null Hypothesis	F	No of lags	Obs	Prob> F
M2/GDP does not Granger cause Real GDP Per Capita	2.553	3	34	0.0718
Real GDP Per Capita does not Granger cause M2/GDP	1.513	3	34	0.2288
Loan/Deposit does not Granger cause Real GDP Per Capita	0.434	2	37	0.6513
Real GDP Per Capita does not Granger cause Loan/Deposit	0.228	2	37	0.7972
Private Credit/GDP does not Granger cause Real GDP Per Capita	5.637***	2	37	0.0073

Real GDP Per Capita does not Granger cause Private Credit/GDP	10.006***	2	37	0.0003
<i>Model 2b: Pairwise Granger Causality Tests for Stock Market Development and Growth</i>				
Null Hypothesis	F	No of lags	Obs	Prob> F
MCAP/GDP does not Granger cause Real GDP Per Capita	7.369***	3	34	0.0006
Real GDP Per Capita does not Granger cause MCAP/GDP	0.094	3	34	0.9627
Trading Vol/GDP does not Granger cause Real GDP Per Capita	13.722***	3	33	0.0000
Real GDP Per Capita does not Granger cause Trading Vol/GDP	3.399**	3	33	0.0291
Market Turnover does not Granger cause Real GDP Per Capita	4.799***	4	31	0.0039
Real GDP Per Capita does not Granger cause Market Turnover	0.586	4	31	0.6752

\*\*\* significant at 1% level, \*\* significant at 5% level

The results in the first Wald test (model 2a) show that the coefficient on the three lags of M2/GDP that are in the equation for real GDP per capita is not statistically significant at the 5% level. Therefore, the null hypothesis that M2/GDP does not Granger cause real GDP per capita cannot be rejected. Likewise, we cannot reject the null hypothesis that the two lags of real GDP per capita do not Granger-cause M2/GDP. Consequently, the hypothesis that real GDP per capita does not Granger cause M2/GDP cannot be rejected. Alternative lags were specified in both cases, but these did not change the results. That is to say that there is no evidence to suggest causality between M2/GDP and real GDP per capita in both directions. The same holds true for the two lagged values of loan to deposit ratio.

However, there is evidence to suggest that there is bi-directional causality between private credit/GDP and real GDP per capita as the coefficient of the two lagged values of private credit/GDP in the equation for real GDP per capita is very significant at the 1% level and vice versa for the two lagged values of real GDP per capita in the equation for private credit/GDP. This finding is consistent with earlier studies that show that the banking credit to the private sector in Nigeria has causal relationship with economic growth (e.g. Akpasung and Babalola, 2011; Udude, 2014; Balago, 2014; Olowofeso et al, 2015). However, in contrast to the study by Akpasung and Babalola (2011) which showed only evidence of unidirectional causality running from GDP to private sector credit, the current study shows that both private sector credit and growth are caused by each other. This result is also

consistent with those of Udude (2014) who showed that while the ratio of private sector credit to GDP had a positive relationship with GDP, the ratio of M2 to GDP (which is a measure of financial deepening) is negative, implying that M2/GDP does not promote economic growth in Nigeria, contrary to economic expectations. The bi-directional causality between private sector credit and growth in Nigeria might be explained by the banking consolidation, which took place from 2004 and caused an upsurge in bank lending activities to the private sector as explained in chapter 3. On the other hand, the non-significance of M2/GDP may be due to the fact that the growth of liquid liabilities in Nigeria is consistent with rising inflationary pressures, and as the central bank reacts to raise interest rates, this could affect borrowing and investment decisions, which may have a negative impact on growth. In addition, the non-significance of loan to deposit ratio, implies that resource allocation in banking is unconnected with economic growth in Nigeria.

With respect to the causal relationship between stock market development and growth, the results in the first Wald test in model 2b show that the coefficients on the three lags of MCAP/GDP that are in the equation for real GDP per capita are statistically significant at the 1% level. Thus, the null hypothesis that MCAP/GDP does not Granger cause real GDP per capita can be rejected. However, we cannot reject the null hypothesis that the three lags of real GDP per capita do not Granger-cause MCAP/GDP, so we cannot reject the hypothesis that real GDP per capita does not Granger cause M2/GDP. In other words, there is evidence to suggest unidirectional causality from MCAP/GDP to real GDP per capita, implying that stock market capitalisation Granger causes growth. The results in the second Wald test show that the coefficients on the three lags of Trading volume/GDP that appear in the equation for real GDP per capita are statistically significant at the 1% level. Thus, the null hypothesis that Trading volume/GDP does not Granger cause real GDP per capita can be rejected.

Similarly, we can reject the null hypothesis that the three lags of real GDP per capita do not Granger-cause Trading volume/GDP, so we can reject the hypothesis that real GDP per capita does not Granger cause Trading volume/GDP. In other words, there is evidence of bidirectional causality between stock market trading volume and economic growth in Nigeria. Finally, there is evidence to suggest that there is unidirectional causality from Market turnover to real GDP per capita as the

coefficient of the four lagged values of Market turnover in the equation for real GDP per capita is very significant at the 1% level but is insignificant for the four lagged values of real GDP per capita in the equation for Market turnover. These results are very consistent with global and Nigerian studies that show that stock market development accelerates the rate of economic growth and capital accumulation (e.g. Levine and Zervos, 1998; Osinubi, 2002; Beck and Levine, 2004; Aigbovo and Izekor, 2015). Well-functioning financial markets and intermediaries tend to reduce information and transaction costs and thereby facilitate efficient resource allocation and long run growth (King and Levine, 1993a; Beck and Levine, 2004). In addition, the Granger causality results in the current study also confirms that growth reinforces stock market development as trading volume/GDP (a measure of stock market liquidity) Granger causes real GDP per capita. This also corroborates the results from the Engle Granger two step ECM presented earlier, which show that trading volume/GDP is positively related and cointegrated with real GDP per capita, further implying that there is evidence of both short run and long run dynamics between stock market liquidity and growth in Nigeria.

### 6.3.3. Causality Between FDI and Financial Development

As proposed in chapter 4, the impact FDI has on growth may be subject to a minimum threshold level of financial development, so that it is appropriate to check whether FDI itself contributes to financial development and, in doing so, advance its chances in stimulating growth (e.g. Omran and Bolbol, 2003). Again, all six financial development indicators are tested against real FDI to examine the direction of causality. Model 3a in Table 6.6 shows the results of the causality between indicators of banking sector development and real FDI, while model 3b shows the results of the causality between stock market development indicators and real FDI.

**Table 6.6. Causality Between Financial Development and FDI**

<i>Model 3a: Pairwise Granger Causality Tests for Banking Sector Development and FDI</i>				
Null Hypothesis	F	No of lags	Obs	Prob> F
M2/GDP does not Granger cause Real FDI	1.631	4	32	0.1905
Real FDI does not Granger cause M2/GDP	0.202	4	32	0.9352
Loan/Deposit does not Granger cause Real FDI	1.519	2	38	0.2317
Real FDI does not Granger cause Loan/Deposit	0.615	2	38	0.5460
Private Credit/GDP does not Granger cause Real FDI	2.316	2	38	0.1124

Real FDI does not Granger cause Private Credit/GDP	4.308**	2	38	0.0206
<i>Model 3b: Pairwise Granger Causality Tests for Stock Market Development and FDI</i>				
Null Hypothesis	F	No of lags	Obs	Prob> F
MCAP/GDP does not Granger cause Real FDI	8.188***	4	32	0.0001
Real FDI does not Granger cause MCAP/GDP	1.606	4	32	0.1969
Trading Vol/GDP does not Granger cause Real FDI	16.276***	3	33	0.0000
Real FDI does not Granger cause Trading Vol/GDP	5.955***	3	33	0.0023
Market Turnover does not Granger cause Real FDI	3.360**	3	34	0.0299
Real FDI does not Granger cause Market Turnover	0.624	2	34	0.5417

\*\*\* significant at 1% level, \*\* significant at 5% level

The results in the first Wald test (model 3a) show that the coefficient on the four lags of M2/GDP that are in the equation for real FDI is not statistically significant at the 5% level. Thus, the null hypothesis that M2/GDP does not Granger cause real FDI cannot be rejected. Likewise, we cannot reject the null hypothesis that the four lags of real FDI do not Granger-cause M2/GDP. Consequently, we cannot reject the hypothesis that real FDI does not Granger cause M2/GDP. In other words, there is no evidence to suggest causality between M2/GDP and real FDI in both directions. The same holds true for the two lagged values of loan-to-deposit ratio.

However, there is evidence to suggest that there is unidirectional causality running from real FDI to private credit/GDP as the coefficient of the two lagged values of real FDI in the equation for private credit/GDP is significant at the 5% level. This means that FDI inflows in Nigeria is a precursor to bank credit to the private sector. Hence, the spillover effects of FDI in Nigeria is likely to be felt in terms of external finance to businesses, which is in line with theories that show that financial institutions can effectively allocate capital to businesses in the face of technological developments brought about by FDI (Hermes and Lensink, 2003; Alfaro et al., 2004, 2010).

There is overwhelming evidence of causality between stock market development indicators in Nigeria and FDI as shown in model 3b. First, there is unidirectional causality running from MCAP/GDP to real FDI, which is very significant at the 1%



level. Second, there is bi-directional causality between trading volume/GDP and real FDI, which is also very significant at the 1% level. Third, there is unidirectional causality running from market turnover to real FDI and this is significant at the 5% level. These results are very consistent with those of Omran and Bolbol (2003) for Arab countries and Soumare and Tchana (2011) for emerging markets. They found that whilst there is an unclear relationship between banking sector development indicators and FDI, there is evidence of either unidirectional or bi-directional causality between stock market indicators (i.e. value traded, market capitalisation and market turnover) and FDI.

The implication of these findings is that market-based indicators of financial development are more associated with FDI inflows than bank-based indicators in the countries studied. Thus, care should be taken to divorce the impact of stock market development from banking sector development when analysing the relationship between financial development and FDI. The results also underscore the different roles banks and stock markets play in a host economy. For example, whereas banks facilitate domestic credit allocation and asset distribution (King and Levine, 1993a), well-functioning stock markets play a vital role in creating linkages between domestic and foreign investors by increasing the spectrum of sources of finance for entrepreneurs (Alfaro et al., 2004).

#### 6.4. FDI, Financial Development and Economic Growth

As noted in earlier chapters, one of the key aspects of this study is to examine the financial development conduit through which FDI may be beneficial to growth. Models by Hermes and Lensink (2003) as well as Alfaro et al. (2004, 2010) predict that the impact FDI has on economic growth is dependent on the development of the local financial markets (i.e. credit markets and stock markets) of the host country. In the current study, economic growth is first expressed as a function of FDI and financial development to see the direct effect of both sets of variables on growth, whilst controlling for other determinants of growth. The results are shown in model 4a in table 6.7. The R-squared shows that the explanatory variables included in the model correctly explain 96.4% of the variations in real GDP per capita. Real non-oil GDP is positively and significantly correlated with growth, indicating that over the study period, the non-oil sectors of the Nigerian economy including manufacturing,

agriculture and services are key drivers of growth in Nigeria. Suffice it to say that the non-oil sectors of the Nigerian economy significantly account for over 90% of the GDP, notwithstanding the fact that the petroleum sector currently accounts for over 90% of foreign exchange earnings and 70% of government revenues (World Bank, 2017a). Interestingly, the ratio of FDI to GDP is negatively related to GDP per capita and is significant at the 1% level. This result is inconsistent with studies that show that FDI tends to promote economic growth through the transfer of technology, skills and productivity gains (e.g. Blomstrom et al, 1992; Caves, 1996; Borensztein et al., 1998; Samad, 2009; Adams, 2009; Egbo and Onwumere, 2011; Umoh et al., 2012; Danja, 2012). On the other hand, the result confirms findings of those that show that FDI exerts a negative and significant impact on growth and domestic investment (e.g. Oyinlola, 1995; Adelegan, 2000). In addition, given that Nigeria is a lower middle-income country, this result also has implications for findings that show that FDI only has a positive effect on growth in high income countries, (e.g. De Mello, 1997), and that the impact of FDI is more pronounced in emerging economies of Eastern Europe and East Asia (e.g. Fillat and Woerz, 2011; Comes et al., 2018).

**Table 6.7: Economic Growth as a function of FDI and Financial Development**

<b>Model 4a:</b>			
No of Obs. = 43 F (12, 30) = 67.79 Prob > F = 0.0000 R-squared = 0.9644 Adj R-squared = 0.9502 Root MSE = 0.20153			
<b>Real GDP Per Capita (log)</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>P-value</b>
Constant	-1.3605	1.0144	0.190
Real Non-Oil GDP Per Capita (log)	0.5750***	0.0934	0.000
<b>FDI</b>			
FDI/GDP	-0.0632***	0.0207	0.005
<b>Financial Development</b>			
M2/GDP	-0.0299***	0.0078	0.001
Loan/Deposit	0.0013	0.0039	0.754
Market Capitalisation/GDP	-0.0118**	0.0052	0.032
Trading Volume/GDP	0.0079**	0.0035	0.030
<b>Controls</b>			
Trade Openness	0.0149***	0.0033	0.000
Population Growth	0.7325*	0.3739	0.059
Government Consumption/GDP	0.0266*	0.0154	0.095
Electric Consumption Per Capita	0.0118***	0.0034	0.002

Enrolment Per Capita	0.1840***	0.0633	0.007
Inflation	-0.0057	0.0034	0.105

\*\*\* significant at 1%, \*\* significant at 5% \* significant at 10%

Three out of the four financial development indicators that entered the regression - M2/GDP, market capitalisation/GDP and trading volume/GDP - were statistically significant in explaining the growth of GDP per capita. However, two of them (M2/GDP and market capitalisation/GDP) exhibit a negative relationship to growth, while trading volume/GDP, a measure of stock market liquidity, showed a positive relationship with growth. This implies that while stock market liquidity is a positive driver of growth, financial depth and stock market capitalisation (a measure of market size) are negatively correlated with growth. This result is consistent with those of Akinlo (2004) and Udude (2014) who showed that the ratio of M2 to GDP in Nigeria had a negative relationship with growth but are only partially consistent with theoretical postulation, which suggests that stock markets play a key role in long term growth (e.g. Levine and Zervos, 1998; Beck and Levine, 2004) in the sense that market liquidity not size drives growth in Nigeria. Again, consistent with earlier findings on the causality between financial development and growth, loan-to-deposit ratio is not statistically significant in explaining growth. One likely implication of this is that credit allocation toward productive activities appears to be inefficient.

With respect to the macroeconomic policy drivers of growth, the results in table 6.7 show that trade openness is a positive driver of growth in Nigeria and this is statistically significant at the 1% significance level. The result is consistent with theories that show that outward-oriented economies benefit from trade flows which contribute to growth (e.g. Harrison, 1996; Yanikkaya, 2003). Government consumption is also positively and significantly correlated with growth, implying that a larger government size is linked with a higher real GDP per capita. This result is consistent with theories studies that show that government spending generates positive externalities which facilitate economic development (e.g. Ram, 1986; Barro, 1990; Danladi et al., 2015). However, it is not clear from the results whether it is productive government spending that drives growth or whether it is spending in particular sectors, as some studies have shown (e.g. Rebelo, 1993; Nurudeen and Usman, 2010; Babatunde, 2018). Inflation has a negative impact on economic growth, in line with theoretical expectations, but this finding is statistically insignificant.

The factor input drivers that enter the regression are human capital and population growth. Capital accumulation (as measured by gross fixed capital formation) was omitted from the list of variables due to incomplete data. Table 6.7. show that population growth rate, which is a measure of the availability of labour input, is positively linked with growth and is statistically significant at the 10% significance level. This is consistent with earlier studies that show that population growth has the potential to positively drive economic growth (e.g. Essien, 2016). However, as discussed in chapter 3, the extent to which labour input contributes to growth will depend on the quality of the labour force. The proxy for human capital development used in this study is the sum of secondary school and tertiary school enrolment as a proportion of the population, which is positively and significantly associated with real GDP per capita. This finding confirms earlier studies that show that investment in human capital in the form of capacity building and education at the primary and secondary school level are positively linked with growth (e.g. Ogujiuba, 2013). However, by contrast, this finding seems to contradict those of Adawo (2011) that show that only primary school enrolment (basic education) contributes to growth, while secondary and tertiary school enrolment (higher quality human capital) tends to dampen growth.

The only measure of institutional drivers of growth used in this study, which is electric consumption per capita (as a measure of infrastructure development), exerts a positive and significant impact on economic growth. This outcome is consistent with previous Nigerian studies that show that electricity consumption drives growth (e.g. Akinlo, 2009; Iyke, 2015). Thus, investing more in the generation and use of electricity serves as a stimulant to the economic growth. By extension, this finding also confirms those studies that examine the impact of other measures of infrastructure (such as mobile telephony and transport infrastructure), since they all serve as important inputs that enhance total factor productivity of other traditional inputs and serve as enablers of FDI inflows which further drives growth (Isaksson, 2010; Bakar, 2012; Pradhan et al., 2013; Cleeve and Yiheyis, 2014).

Next, the FDI-financial development linkages hypothesis is tested by expressing economic growth as a function of FDI, financial development and the interaction of FDI with financial development variables. The interaction term is used to capture

the role of financial sector development as it enhances the contributions of FDI on economic growth. This is shown in model 4b in table 6.8. The explanatory variables in this augmented model account for over 97.6% of variations in the dependent variable, real GDP per capita. By observation, while most of the variables included in the model 4a retain their signs and significance, a few other variables lose their significance - e.g. population growth and government consumption. In addition, inflation becomes significant in explaining variations in economic growth.

**Table 6.8: Economic Growth and the Interaction of FDI with Financial Development**

<b>Model 4b:</b>			
No of Obs. = 43			
F (16, 26) = 66.88			
Prob > F = 0.0000			
R-squared = 0.9763			
Adj R-squared = 0.9617			
Root MSE = 0.1768			
<b>Real GDP Per Capita (log)</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>P-value</b>
Constant	-0.8659	1.1077	0.441
Real Non-Oil GDP Per Capita (log)	0.5858***	0.0833	0.000
<b>FDI</b>			
FDI/GDP	-0.1434	0.1233	0.255
<b>Financial Development</b>			
M2/GDP	-0.0211*	0.0114	0.076
Loan/Deposit	0.0011	0.0057	0.849
Market Capitalisation/GDP	-0.0455***	0.0122	0.001
Trading Volume/GDP	0.0204***	0.0061	0.003
<b>Interaction of FDI and Financial Development</b>			
FDI*Loan/Deposit	0.0004	0.0010	0.731
FDI*M2/GDP	-0.0013	0.0034	0.695
FDI*Market Capitalisation/GDP	0.0080***	0.0026	0.004
FDI*Trading Volume/GDP	-0.0030*	0.0017	0.093
<b>Controls</b>			
Trade Openness	0.0175***	0.0031	0.000
Population Growth	0.5557	0.3586	0.133
Government Consumption/GDP	0.0158	0.0157	0.323
Electric Consumption Per Capita	0.0113***	0.0031	0.001
Enrolment Per Capita	0.1856***	0.0622	0.006
Inflation	-0.0059*	0.0030	0.061

\*\*\* significant at 1%, \*\* significant at 5% \* significant at 10%

The variables of interest here, however, are the interaction terms between FDI and banking development variables and between FDI and stock market development variables. As can be seen, the interaction of FDI with credit market development

variables - loan/deposit ratio and M2/GDP are statistically insignificant, while the interaction of FDI with stock market variables - market capitalisation/GDP and trading volume/GDP are statistically significant at the 1% and 10% level respectively. This implies that only stock market development variables shape the relationship between FDI and growth, consistent with studies that show that well-developed financial markets allow significant gains from FDI<sup>14</sup> (e.g. Alfaro et al., 2003, 2004, 2010; Omran and Bolbol, 2003; Bahri et al., 2017). However, the coefficient of FDI\*trading volume has a negative sign, while that of FDI\*market capitalisation has a positive sign, implying that the growth benefits or spillover effects of FDI are enhanced by the stock market size in Nigeria, whilst market liquidity stifles the growth benefits or spillover effects of FDI in Nigeria. This has implications for the depth of liquidity services offered in the stock markets in order to promote and sustain the spillover effects of FDI on growth. But given that in the previous model (model4a), both FDI and market capitalisation were negatively associated with growth, it might also be safe to conclude that where stock market size is large, the spillover effects of FDI on growth will be positive, while reduced market liquidity is likely to inhibit the growth benefits of FDI.

## 6.5. Robustness Checks

Given that the effect of FDI on economic growth is likely to be affected by the regulatory regime in place over the years, it is appropriate to disentangle the effect of pre-liberalisation policies to check if capital account liberalisation shapes the FDI-growth linkage. Thus, a time dummy variable was created to distinguish between the era of restrictive policies and the era of liberalised foreign investment policies. The period from 1970-1994 was labelled as restrictive, while the period from 1995 (with the promulgation of the NIPC Act) to 2014 was labelled as liberalised. The results of the regression (see appendix 1a&b) show that FDI still maintains a negative relationship with growth in both periods. However, the result is only statistically significant for the restrictive era. This indicates that the negative relationship between FDI and growth is perhaps more pronounced in the restrictive era than in the liberalised era.

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<sup>14</sup> Earlier, we show that credit to private sector, a measure of banking development granger causes growth. But here we fail to see any impact of banking sector development variables on the relationship between FDI and growth, though private sector credit has been excluded due to collinearity.

Another regression was carried out to check the impact of FDI and financial development on non-oil growth (measured by the log of real non-oil GDP per capita). The results (see appendix 2) show that FDI has a negative but insignificant relationship with non-oil growth, while only trading volume/GDP has a positive and significant relationship with non-oil growth. Other financial development variables (loan deposit/GDP, M2/GDP and MCAP/GDP) have a negative but insignificant relationship with non-oil growth. Inflation and trade openness seem to also be very important constraining factors for non-oil growth with a negative and very significant relationship with non-oil growth. The latter suggests that trade openness does not benefit non-oil sectors as much as it does the whole economy, since it has a negative and significant effect on non-oil growth, whilst being a positive driver of overall growth. The reason for this may be due to the fact that the oil sector accounts for majority of Nigeria's exports and trading volume, which in turn drives overall growth.

## 6.6. Chapter Summary

This chapter has attempted to provide answers to the main research questions of the study. In particular, it examined the empirical relationships between FDI and growth and the role of financial development in shaping this relationship. It has also examined the relationships between FDI and financial development and financial development and growth. With respect to the FDI-growth nexus, the Engle and Granger two step error correction model (ECM) show that no long run relationship exists between economic growth and FDI in either directions. However, the Granger causality test show that a bi-directional short run dynamic relationship exists between real FDI and economic growth. Thus, the relationship between growth and FDI is reinforcing and endogenous in the short run. Results from the OLS regression show that FDI is negatively and significantly related to economic growth even after controlling for the effect of capital account liberalisation.

In addition, there is no evidence of causality between FDI and non-oil growth. With respect to the causal relationships between FDI, financial development and growth, the Granger causality tests show that market-based indicators of financial development (market capitalisation, value traded and market turnover) are more associated with FDI inflows and economic growth than bank-based indicators. This

supports the notion that well-functioning stock markets play an important role in attracting foreign investors since they increase the range of finance sources available to domestic entrepreneurs as well as existing evidence that stock market development accelerates the pace of economic growth and capital accumulation. However, the Granger causality results show that FDI inflows is a precursor to bank credit to the private sector, while credit to private sector Granger causes economic growth in Nigeria. On the specific relationship between financial development and growth in Nigeria, the OLS regression results show that stock market liquidity is a positive driver of growth, while financial depth and stock market capitalisation are negatively correlated with growth.

The interaction between FDI and banking development variables were not statistically significant, while the interaction between FDI and stock market development variables were statistically significant. This implies that only stock market development variables shape the relationship between FDI and growth in Nigeria. However, the interaction of FDI and stock market capitalisation positively and significantly explains growth, while the interaction of FDI and stock market liquidity has a negative and significant association with growth. This implies that the growth benefits or spillover effects of FDI inflows in Nigeria are enhanced by the size of the stock market rather than market liquidity. The OLS results also show that other key positive drivers of growth in Nigeria are trade openness, government consumption, population growth, human capital and electricity consumption, while rising inflation constrains growth as expected.



## Chapter 7

### Conclusion and Policy Implications

#### 7.0. Introduction

This thesis has examined the linkage between FDI and economic growth in Nigeria as well as the role of financial development in enhancing the benefits of FDI to Nigeria. It also considered the impact of other determinants of growth in Nigeria's economic development process. This chapter concludes the thesis by summarising key theoretical, descriptive and empirical findings from the thesis and provides some policy and managerial implications as well as a note of the limitations of the study. Lastly, it provides some direction for future research.

#### 7.1. Summary of Key Findings

##### 7.1.1. Key Findings from Theoretical Analysis

FDI has continued to gain increasing acceptance over the years as an important strategy for economic growth particularly in developing countries. FDI is a great source of growth capital, knowledge and technology transfers and productivity gains to the host economy (Blomstrom, et al. 1992; Caves, 1996; OECD, 2002; UNCTAD, 2003; Chakraborty and Nunnenkamp, 2008; Samad, 2009). However, FDI in many developing countries (including Nigeria) has been notable for crowding out domestic investment (e.g. Oyinlola, 1995; Adelegan, 2000; Akinlo, 2004; Adams, 2009).

In addition, many studies found that for the gains of FDI to be appropriated, the host country needs to develop absorptive capacities (World Bank, 2001), which include: improved financial markets (Hermes and Lensink, 2003; Omran and Bolbol, 2003; Alfaro et al., 2004, 2010; Shah, 2016; Alzaidy et al., 2017; Bahri et al., 2017), better human capital (Borensztein, et al., 1998; Blonigen and Wang, 2005; Li and Liu, 2005), greater economic freedom (Caetano and Caleiro, 2009; Ajide and Eregha, 2014), more trade openness (Makki and Somwaru, 2004; Seyoum et al., 2014), better institutional quality (Cleeve, 2012); and infrastructure development (Wheeler and Mody, 1992; Bakar, 2012; Pradhan et al., 2013); amongst other enabling factors.

In particular, this study has highlighted the importance of well-developed financial markets in enhancing the spillover effects of FDI on economic growth. For example, financial institutions provide access to finance to local entrepreneurs who want to take advantage of the benefits of FDI, whilst well developed stock markets not only increase the spectrum of finance sources available to domestic entrepreneurs but accelerate the process of capital accumulation and output growth by linking domestic and foreign investors and by providing adequate liquidity services (Levine and Zervos, 1998; Beck and Levine, 2004).

#### 7.1.2. Key Findings from Trend Analysis

Nigeria has been among the top five recipients of FDI in Africa since the 1970s. The trend analysis of FDI flows to Nigeria showed that the structure and flow of FDI into the country was influenced strongly by the regulatory regime, which was predominantly restrictive between 1970 and 1994, and later liberalised in 1995 with the promulgation of the NIPC Act. Though there has been some effort to diversify into the manufacturing and services sector in recent years; FDI in Nigeria has conventionally been concentrated in the extractive industries (i.e. oil and gas, solid minerals, etc). Thus, FDI in Nigeria has been largely resource-seeking. The brewery, telecoms, miscellaneous services and retail industries are some of the major industries that have attracted inward FDI in recent times besides oil and gas.

The analysis of financial development in Nigeria showed that financial sector reforms in Nigeria, namely financial liberalisation from 1986 (with the introduction of SAP) and the consolidation of the financial sector from 2004 onwards seemed to have improved several banking and market indices, which in turn have become key drivers of growth in Nigeria (e.g. Balago, 2014; Aigbovo and Izekor, 2015; Azubuike, 2017). Other key positive drivers of growth in Nigeria are trade openness, government consumption, population growth, human capital and electricity consumption. But recent developments in the Nigerian economy since 2014 show that economic growth has retarded significantly following the fall in oil prices, which has led to significant decline in the country's oil revenues and foreign exchange resources. Consequently, FDI has declined sharply by more than 65% between 2011 and 2015 and inflation has risen significantly because of the combined effect

of currency depreciation, higher energy prices and high cost of inputs (Ministry of Budget and National Planning, 2017).

#### 7.1.3. Key Findings from Empirical Analysis

The key findings from the empirical analysis conducted in this study will be provided within the context of the research questions of the study:

##### ***RQ1: Does FDI promote economic growth in Nigeria?***

Using the Engle and Granger two step error correction model (ECM), this study has shown that no long run relationship exists between economic growth and FDI in either directions. However, the Granger causality test show that a bi-directional short run dynamic relationship exists between real FDI and economic growth. Thus, the relationship between growth and FDI is reinforcing and endogenous in the short run. Results from the OLS regression show that FDI is negatively and significantly related to economic growth even after controlling for the effect of capital account liberalisation. In addition, there is no evidence of causality between FDI and non-oil growth.

##### ***RQ2: What role does financial development play in enhancing the impact of FDI on the domestic economy?***

The interaction between FDI and banking development variables were not statistically significant, while the interaction between FDI and stock market development variables were statistically significant. This implies that only stock market development variables shape the relationship between FDI and growth in Nigeria. However, the interaction of FDI and stock market capitalisation positively and significantly explains growth, while the interaction of FDI and stock market liquidity has a negative and significant association with growth. This implies that the growth benefits or spillover effects of FDI inflows in Nigeria are enhanced by the size of the stock market rather than market liquidity.

##### ***RQ3: Is there any causal relationship between FDI and financial development and between financial development and growth?***

The Granger causality tests show that market-based indicators of financial development (market capitalisation, value traded and market turnover) are more

associated with FDI inflows and economic growth than bank-based indicators. This supports the notion that well-functioning stock markets play an important role in attracting foreign investors since they increase the range of finance sources available to domestic entrepreneurs as well as existing evidence that stock market development accelerates the pace of economic growth and capital accumulation. However, the Granger causality results show that FDI inflows is a precursor to bank credit to the private sector, while credit to private sector Granger causes economic growth in Nigeria. On the specific relationship between financial development and growth in Nigeria, the OLS regression results show that stock market liquidity is a positive driver of growth, while financial depth and stock market capitalisation are negatively correlated with growth. Loan-to-deposit ratio is never significant in all models of growth, implying that the credit allocation process appears to be largely inefficient.

## 7.2. Key Implications for Public Policy

This section sets out the policy implications of the above findings for the Nigerian government. The public policy options available include improving the investment climate to re-attract FDI following the recent decline in FDI inflows. In addition, there is need to improve the institutional environment and the absorptive capacity of the economy to sustain FDI flows.

Key policy implication measures will have to include economic diversification, infrastructural transformation, and improvement in the contribution of banks and capital markets (financial development) to the development process.

Other measures include; establishing and implementing favourable macroeconomic and investment policies (including fiscal incentives) to support both domestic and foreign investors, as well as entrenching political stability and institutional quality.

### 7.2.1. Economic Diversification

The oil sector accounts for less than 10% of Nigeria's GDP. However, it remains a large contributor to government revenues and export earnings. By contrast, it accounts for more than 60% of FDI flows into Nigeria. With the recent fall in oil prices and subsequent loss of government revenues, there is immediate need to diversify

the economic base of the country as well as redistribute FDI inflows to growth inducing non-oil sectors, such as manufacturing, agriculture and the services sectors. These sectors are the largest contributors to GDP, with services sectors (including retail and wholesale trade) accounting for over 53% of GDP, agriculture (24% of GDP) and manufacturing (9% of GDP). Real estate and construction also accounts for over 7% of GDP. Considering their historical growth rates, these sectors have the potential to diversify the economy and restore growth; while earning foreign exchange and increasing the pliability of the economy to external shocks, especially in the oil and gas sector (e.g. oil price shocks). The Solid minerals sector also has great potential for growth notwithstanding its relatively low contribution to GDP. According to Oh (2017), the Nigerian services sector has shown remarkable gains amid tough economic circumstances and could be the engine for future growth. The services sector has seen a double percentage increase from 28% of GDP in 2009 to over 53% of GDP in 2016. These sectors have been stimulated by favourable government policies and increased FDI inflows. Recent growth in retail and wholesale trade, telecommunications and banking industries could help to diversify Nigeria's economy even further. Thus, investment policies of the Nigerian government should be aimed at promoting further investments in these sectors.

#### 7.2.2. Infrastructural Transformation

As noted severally, good infrastructure increases the productivity of investments, reduces operating costs and therefore stimulates FDI flows (Cleeve and Yiheyis, 2014; Wheeler and Mody, 1992; Asiedu, 2002). Though this study has shown that electricity consumption does positively impact on growth, the cost of doing business in Nigeria has been exceptionally high due to poor electricity generation and poor road networks amongst other factors as shown by the World Bank (2017b). These conditions increase energy costs, make access to markets difficult and hence reduce overall profitability and competitiveness of businesses. Transport infrastructure development is a condition precedent to faster economic growth (Bakar, 2012; Pradhan et al., 2013). The value of total infrastructure stock (road, rail, power, airports, water, telecoms, and seaports) in Nigeria represents only 35% of GDP. This is far below the level of peer emerging market countries (such as India, China, Brazil, Indonesia and South Africa), where the average is 70% (Ministry of Budget and National Planning, 2017). Policy measures should therefore aim at

accelerating investments in infrastructure development especially power, telecoms and transport infrastructure. To optimize the contribution of the various economic sectors, Nigeria needs to invest US\$3 trillion in infrastructure over the next 30 years (Ministry of Budget and National Planning, 2017). The Federal Government alone cannot provide these resources. It needs to leverage private sector capital in a variety of ways such as investment funds, public-private partnerships, special purpose vehicles, and various guaranty arrangements. Improving infrastructure this way will not only reduce operational costs, but will increase profitability, competitiveness of local industries and attract more FDI inflows.

### 7.2.3. Enhancing the Contribution of Financial Markets

One of the core propositions of this study has been that well-developed financial markets tend to enhance the contribution of FDI to the growth of the host economy (e.g. Hermes and Lensink, 2003; Omran and Bolbol, 2003; Alfaro et al., 2004, 2010; Shah, 2016; Alzaidy et al., 2017; Bahri et al., 2017). The findings of the current study show that bank allocation of credit in Nigeria appears to be largely inefficient, while stock market liquidity appears to be constraining the growth benefits or spillover effects of FDI. A World Bank's Enterprise survey in 2014 surveyed over 2,000 small businesses in Nigeria and found that the major obstacles faced by businesses are limited access to finance (30%), poor power infrastructure (27%) and corruption (13%) in that order (Ministry of Budget and National Planning, 2017). This implies that access to finance is still a major challenge to enterprise development in Nigeria. Thus, policy measures should aim at improving the efficiency of capital allocation, especially to productive investments. The government should collaborate with banks and financial institutions to develop a structured financing plan to offer less expensive and more accessible credit to the real sector especially businesses wishing to take advantage of technological developments. In addition, efforts should be made to develop the financial services sector, including insurance and banking. For example, stimulating financial inclusion initiatives (e.g. opening banks in rural areas), establishing links between rural and urban, banking and non-banking as well as formal and informal financial systems and improving financial product diversification. Within the capital market space, regulatory policies should also aim at enhancing the liquidity of the stock market to foster trust and improve efficiency in the capital market as well as reduce transaction costs. As noted in chapter 3, the

overall effect of all these will be consolidation in productivity gains from FDI and increase in capital accumulation, which in turn promotes growth.

#### 7.2.4. Implementing Favorable Macroeconomic and Investment Friendly Policies

In a bid to promote investment in the key high growth non-oil sectors identified - agriculture, manufacturing and services, the Federal Government of Nigeria would need to establish and implement favourable macroeconomic and investment friendly policies to attract and sustain both domestic and foreign investments. For example, in the area of agriculture, efforts should be made towards supporting an integrated transformation of the agricultural sector by boosting agriculture productivity via integrating the value chain, facilitating access to inputs, improving access to markets and financing and extension services. In manufacturing, policies should be aimed at providing incentives that will establish industrial hubs, review local fiscal and regulatory incentives that will lead to the development of industrial cities, parks and clusters, particularly around existing ports and transport corridors. In addition, reviewing local fiscal and regulatory incentives to revitalize export processing zones amongst other fiscal incentives such as tax breaks. Efforts can also be made to promote innovative and technology-led industries by providing fiscal incentives for private investments in R&D and encouraging the development of venture capital and private equity players through an attractive fiscal and regulatory policy framework. In solid minerals sector, government should create an enabling tax and regulatory environment for the exploration, development and utilization of the nation's untapped mines including bitumen, coal, bauxite, gypsum, marble and other precious stones as well as the resuscitation of the steel industry.

#### 7.2.5. Entrenching Political Stability and Institutional Quality

As noted in chapter 2, Cleeve (2012) found that institutional factors are important for attracting FDI to sub-Saharan Africa (SSA) countries, arguing that since FDI flows to Africa is highly sensitive to economic and political risks, policies to improve the institutional environment could significantly improve a country's ability to attract more FDI. Thus, policy measures should aim at establishing and entrenching a stronger set of institutions (including efficient legal systems, political stability, democratic accountability, reduced bureaucracy and corruption). Efforts here include reducing the cost of governance, eliminating waste in public expenditures,



implementing e-government across all government bodies, entrenching fiscal discipline and transparency in government, promoting fiscal sustainability, strengthening the anti-corruption war, promoting the rule of law and strengthening the enforcement of contracts and improving security of lives and property. These measures, if taken, would improve the ease of doing business, reduce unnecessary bottlenecks in commercial transactions, induce stronger connections and linkages between domestic firms and foreign capital, and therefore increase the likelihood of a spillover effect on the economy.

### 7.3. Managerial Implications

The managerial implications of this study are straightforward. This study has shown that there are enormous opportunities for risk takers, such as entrepreneurs and foreign investors to explore the business and economic potentials available in the country. For example, private and foreign investors can work with the Nigerian government to finance infrastructural projects, and invest in non-oil sectors (agriculture, manufacturing, services and solid minerals sectors) as part of the country's economic diversification plan. As noted earlier, the services sectors are particularly attractive given its recent growth potential. For example, Nigeria has one of the most open services markets in Africa. It receives an overall score of 27.1 (virtually open)<sup>15</sup> on the Services Trade Restrictions Index (STRI) published by the World Bank even though it ranks very poorly in terms of ease of doing business and infrastructure (Oh, 2017). In addition, Nigeria is the fourth most attractive investment market for retailers in Sub-Saharan Africa, largely based on its volume of consumers and its growing middle class (A.T. Kearney, 2015). The huge market for luxury goods, growth of online retailing, increase in mobile phone subscriptions, huge proportion of unbanked population and relative growth of the film industry in Nigeria (*Nollywood*) all demonstrates the huge untapped market that Nigeria presents to both local and foreign investors. Notwithstanding the opportunities present in Nigeria, the business environment equally poses enormous challenges, particularly in the areas of access to finance, poor infrastructure, and corruption, which makes doing business in Nigeria difficult.

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<sup>15</sup> STRI scores compiled by the World Bank range from 1 (open without restrictions) to 100 (completely closed).



The findings of this study also have implications for the management of banks and financial institutions to review their loan policies to give more attention to productive, value enhancing activities that can both generate adequate returns on investment and improve the productive potential of the nation. In addition, the regulatory authorities would need to review the regulatory and supervisory framework of banks and capital markets to ensure that they support the growth ambitions of the government.

#### 7.4. Summary of Contributions

This study clearly makes contributions to the literature on the causality between FDI and growth as well as between Financial development and FDI. Specifically, the study makes important contributions to the literature in four unique ways. Firstly, this study sort to observe the financial development networks through which FDI may be growth inducing, as well as other factors that drive growth along with FDI. As mentioned earlier, it has also been hypothesised that funtional financial markets help to enhance the absorptive capacity of FDI in the host economy and magnify the spillover effects of FDI on growth. Suffice it to say that no study (to the knowledge of the research) has examined the role of financial development in shaping the linkages between FDI and growth in Nigeria. Second, the study makes theoretical contributions in the sense that it extends the Cobb-Douglas production function to illustrate how improvements in the financial markets impact the effects of FDI on domestic productivity. Third, the study makes some methodological contributions as it used a mix of methodologies, including cointegration, Granger causality and OLS techniques to provide suitable answers to the research questions. In particular, it attempted to resolve common methodological issues relating to the estimation of Cobb Douglas type production function or growth equations, including those related to collinearity, non-stationarity and endogeneity. Fourth, the study makes policy contributions, as it provides robust and evidence-based policy implications of the findings.

### 7.5. Limitations of the Study

Notwithstanding the significance and contribution of this study, it is not without limitations. First, the number of observations for the dataset used is relatively small ( $n=45$ ) and this has posed enormous challenges in terms of methodological approach. Whilst, the use of cointegration and Granger causality were quite appropriate, the use of OLS has posed some limitations as with many growth studies. With a larger number of observations (e.g.  $n \geq 200$ ), it would have been possible to use other techniques such as structural equation modelling (SEM) due to its methodological advantages over OLS. For example, while multiple regression based on OLS is an excellent tool used in predicting the variance in an interval dependent variable based on linear combinations of interval, dichotomous or dummy independent variables, SEM techniques allow simultaneous analysis of all the variables in the model instead of separately (Fornell, 1984; Chin, 1998). In addition, with SEM, measurement error is not aggregated in a residual error term, as is the case with OLS. SEM helps to overcome some of the known reliability and validity problems with OLS in order to maximise the goodness of fit of the model (Hox and Bechger, 1999; Alavifar et al., 2012).

However, some of the methods used to overcome these challenges include: conducting preliminary tests for normality, unit root, multi-collinearity and other post estimation tests to check the shape of the residuals (error terms). Key variables which did not follow a normal distribution were transformed while non-stationary variables were made stationary before running the regressions. In addition, duplicate variables that were highly collinear were either treated or removed to avoid any spurious regressions. A second limitation of the study is the non-inclusion of some important variables in the growth models such as gross fixed capital formation (a measure of capital accumulation) and measures of institutional quality including data on expropriation, corruption, rule of law, political stability and bureaucratic quality (due to incomplete or unavailable data). Thus, there is a risk of omitted-variable bias in which the results in the model may have attributed the effect of the missing variables to the estimated effects of the included variables.

### 7.6. Future Research

Future research will seek to focus on four areas. First, it will consider the role of other absorptive capacities such as human capital and infrastructure development in enhancing the growth benefits of FDI. In this regard, it will be beneficial to explore other measures of human capital and infrastructure development where appropriate and available. Second, it will also be beneficial to empirically explore the determinants of FDI in Nigeria and confirm what types of FDI have dominated the investment landscape over the years. Third, given that FDI flows to Nigeria has been driven by sectoral considerations, it will also be interesting to see which sectors induce more growth benefits than the other. Lastly, it may be important to examine the social and environmental spillover effects associated with FDI. Over 60% of FDI flows to Nigeria is concentrated within the extractive (oil) sector/industry. There is a correlation between extractive industry activities and the environment world over. Hence, it will be important to see how this correlation impacts the long-term development of the Nigerian economy.

However, this may be constrained by data availability at disaggregated sectoral levels.

## Appendices

### Appendix 1a: Regression Results for the Restrictive Era (1970-1994)

<b>Economic Growth as a function of FDI and Financial Development in the Restrictive Era</b>			
No of Obs. = 24 F (12, 11) = 45.20 Prob > F = 0.0000 R-squared = 0.9801 Adj R-squared = 0.9584 Root MSE = 0.13302			
<b>Real GDP Per Capita (log)</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>P-value</b>
Constant	0.6659	1.0139	0.525
Real Non-Oil GDP Per Capita (log)	0.3318**	0.1145	0.015
<b>FDI</b>			
FDI/GDP	-0.0906***	0.0286	0.009
<b>Financial Development</b>			
M2/GDP	-0.0231	0.0197	0.909
Loan/Deposit	0.0068	0.0044	0.152
Market Capitalisation/GDP	0.0125	0.0231	0.599
Trading Volume/GDP	0.0356	0.0619	0.577
<b>Controls</b>			
Trade Openness	0.0298***	0.0057	0.000
Population Growth	0.3454	0.3188	0.302
Government Consumption/GDP	0.0320*	0.0159	0.069
Electric Consumption Per Capita	0.0003	0.0053	0.950
Enrolment Per Capita	0.0625	0.0929	0.515
Inflation	-0.0091**	0.0037	0.031

\*\*\* significant at 1%, \*\* significant at 5% \* significant at 10%

## Appendix 1b: Regression Results for the Liberalised Era (1995-2014)

<b>Economic Growth as a function of FDI and Financial Development in the Liberalised Era</b>			
No of Obs. = 19 F (12, 6) = 104.81 Prob > F = 0.0000 R-squared = 0.9953 Adj R-squared = 0.9858 Root MSE = 0.1167			
<b>Real GDP Per Capita (log)</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>P-value</b>
Constant	-10.2053	12.3562	0.440
Real Non-Oil GDP Per Capita (log)	0.9767*	0.4104	0.055
<b>FDI</b>			
FDI/GDP	-0.0120	0.0438	0.793
<b>Financial Development</b>			
M2/GDP	-0.0277	0.0206	0.229
Loan/Deposit	0.0017	0.0089	0.857
Market Capitalisation/GDP	-0.0135	0.0079	0.137
Trading Volume/GDP	0.0033	0.0034	0.363
<b>Controls</b>			
Trade Openness	0.0033	0.0047	0.506
Population Growth	4.2596	5.7270	0.485
Government Consumption/GDP	0.0058	0.0219	0.800
Electric Consumption Per Capita	0.0023	0.0046	0.630
Enrolment Per Capita	0.0093	0.1474	0.952
Inflation	0.0029	0.0093	0.764

\* significant at 10%

## Appendix 2: Regression of FDI and Fin Dev on Non-Oil Growth (All Periods)

<b>Economic Growth as a function of FDI and Financial Development in the Restrictive Era</b>			
No of Obs. = 43 F (11, 31) = 16.24 Prob > F = 0.0000 R-squared = 0.8521 Adj R-squared = 0.7996 Root MSE = 0.38731			
<b>Real Non-Oil GDP Per Capita (log)</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>P-value</b>
Constant	4.4157**	1.7810	0.019
<b><i>FDI</i></b>			
FDI/GDP	-0.0153	0.0397	0.704
<b><i>Financial Development</i></b>			
M2/GDP	-0.0052	0.0150	0.731
Loan/Deposit	-0.0094	0.0075	0.218
Market Capitalisation/GDP	-0.0114	0.0098	0.255
Trading Volume/GDP	0.0170***	0.0059	0.007
<b><i>Controls</i></b>			
Trade Openness	-0.0158***	0.0056	0.009
Population Growth	1.4234**	0.6715	0.042
Government Consumption/GDP	0.0713**	0.0268	0.012
Electric Consumption Per Capita	-0.0082	0.0064	0.211
Enrolment Per Capita	0.0531	0.1213	0.665
Inflation	-0.0234***	0.0049	0.000

\*\*\* significant at 1%, \*\* significant at 5%

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